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A REMARKABLE CASE OF PLASTIC OPERATION UPON THE FACE; FORMATION OF EYE-LIDS AND TOTAL RESTORATION OF THE NOSE.

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In studying the modern literature of rhinoplasty, we find that surgeons strive to individualize, and do not attempt to follow a certain typical method. Asepsis in operative work has done away with rapid and brilliant operating, and in its place has come the art of adapting surgical measures closely to the exigencies of the particular case. To express this thought, more clearly, I will refer to the Tagliacozzian method of rhinoplasty. This eminent surgeon laid down strict rules as to the exact number of cuts to be made in a specified time. These cuts, he declared, must be made with certain particular instruments, and the patient must have a particular posture during the operation. If a follower of his method deviated slightly from these prescribed rules, success was not anticipated, and all failures were supposed to be due to irregularities in methods. Modern investigation has proved, that accidental wound diseases are responsible for failures, and since asepsis has come to reign, successes

are obtained even by the surgeon, who does not know the method, but has common sense to carry out his plans.

The resection of a joint in exact accordance with a rule laid down by a master would be a slavish and inappropriate method, since the surgeon must resect only what is pathological in his particular case, and what is necessary in order to achieve functional results. In modern surgery, therefore, the tendency is not to lay down certain rules for particular kinds of pathological conditions, as in former times, but to formulate more or less general ideas and indicate general lines of treatment according to which the surgeon must carry out his operation.

Billroth expressed this very aptly in his introductory remarks to the students at the opening of his clinics. "Study closely," he said, "the history and description of cases, more than the disease; experiment, and try to gain surgical tact, and you will become better surgeons than if you carried out the procedure according to the iron rules of masters." These ideas are particularly applicable to plastic surgery. Not one case of defect of the nose is identical with another, and in no case is the method of restoration exactly like that in any other case.

However, we must have, as before stated, some general ideas of restoration, and must make use of the large experience of other surgeons, otherwise, the chances for successful operation will be very slight.

In the following lines I shall endeavor to point out some general rules in describing an interesting case of rhinoplasty. Literally, rhinoplasty means the formation of an entire new nose, but the term is now also used to designate restoration of parts of the nose.

Total loss of nose results from either injuries or disease. At the present time with our conservative methods of treatment, such loss as a result of injury is very rarely found, although the injuries reported during the last war include some cases of considerable destruction resulting from gun shot wounds.

The nose is destroyed as a consequence of disease (mostly syphilis) by progressive ulceration, and while it very rarely happens at the present time in civilized countries, that a case is left untreated until the entire external nose is destroyed, it is a common occurrence in less

civilized countries, and in places remote from medical centres.

Total destruction of the nose means destruction of the bony and cartilaginous skeleton, as well as the integument. An interesting case of this kind has come under my observation through the courtesy of Dr. B. Baldwin, to whom I am also indebted for the history, as follows:

The girl is 14 years old, has a healthy mother and two healthy sisters. Her father, a soldier during the civil war, is dead. He was afflicted with syphilis. When the child was 9 years old she showed evidence of syphilis. Not being treated at the beginning, the ravages of the disease caused such destruction of her face that she was kept hidden from the sight of strangers for a long time. This accounts for the progress the disease had made before she ever came under treatment. She was finally brought to this city and given to Dr. Baldwin, Professor of Skin Diseases in the Post Graduate School, for treatment. Her condition as shown by illustration 1. was as follows: In addition to the localization of syphilitic conditions throughout her body, such as gummata of the tibia and other bones—her face showed total destruction of the nose, including the bony septum, leaving only part of the vomer and a little tip of the cartilaginous portion of the septum, fortunately, as will be seen later on, in the plastic. Both lower eye-lids were destroyed, the right one being preserved to about one-tenth of an inch only, and drawn upward in one surface of conjunctiva. She had a large ulcer on the cheek, the left lower eye-lid being entirely destroyed, leaving the cheek, which was also destroyed by the ulcer, in one plane with the conjunctiva. The upper eye-lid on the left side was also partly gone, and the palate destroyed in its central portion. At this time the ulcerations were all in a florid condition, unhealthy, and showing the characteristic tissue of syphilitic granulations.

This pitiable creature cried day and night with pain in the ears and head. Persistent treatment by Dr. Baldwin brought her to a condition in which all the florid symptoms disappeared, and after four months she offered some chance for a plastic operation. Dr. Baldwin tried the plastic himself using the method of forming a nose by the

implantation of the finger. He used the middle finger of the left hand, splitting the epidermis of the last phalanx, and separating the skin on the tip of the finger to both sides. Then he took off the nail, and implanted the finger into the freshened border at the root of the nose between the eye-brows, thinking that later on he would use the two phalanges of the finger, and so get a nose. This method is sometimes used with success, as has been proven by a number of experiments, and it gives a fairly good cosmetic result. This experiment failed, and it is not strange that it was a failure in this particular instance, because the use of the Italian method in children, especially syphilitic children, is an extremely difficult task, which rarely gives good results.

In the middle of April she was given to the writer, with instructions to do what he could with her, and he commenced a course of treatment which aimed to remove all traces of syphilis by specific and internal treatment. Unfortunately, from time to time the dreadful disease recurred and interfered with many of the good results of the plastic operations. Nevertheless, now after six months, we have succeeded in restoring the nose and eye-lids and the girl again looks human.

The following steps were taken in the operations:

1st. *Removal of the diseased right conjunctiva, and transplantation of a graft of the mucous membrane of the mouth into the wound.* This first step was taken with the idea of ascertaining if the disease was a mucous infection of syphilis and tuberculosis on the conjunctiva. On this place there appeared some white nodular infiltrations which bore close resemblance to tuberculosis as seen in progressive lupus, and the writer thought it might be such a condition. He had the specimen examined by Prof. Klebs, who found no trace of tuberculosis, so that Dr. Baldwin's decision that the disease was absolutely pure syphilis, was found to be correct. This experiment succeeded only partially, as only a portion of the graft healed on.

2d. *Left lower eye-lid restored.* A tongue shaped flap was dissected from the left temple and turned in the form of a right angle to its pedicle, so that the tongue of the flap formed the lower lid externally, the conjunctiva being dissected and turned back upward into its former normal

position, and the border of the dissected conjunctiva and the flap were sutured. This operation succeeded perfectly. I regretted not having exercised the scar of the cheek, as this would have greatly facilitated the further steps of the nose formation. But inasmuch as this was the first step of the operation, and up to this time I had no idea how the girl would react to plastic operations, I thought it best not to remove too much of the tissue, and that I might at some future time replace the scar of the cheek by some healthy integument from the neck.

3d. *Formation of the right cheek and right lower lid.* This time I excised the whole scar of the cheek, dissected the conjunctiva and formed the same kind of tongue-shaped flap on the right temple as before, turning this flap not only as far back as the internal canthus of the right eye, but even over that clear up to the forehead. This was the best step of the whole operation, assuring the union of the flap with the healthy skin on the forehead, and afterward giving to the eye a normal appearance much better than on the other side.

These two operations are blepharo-plastic operations—that is, the restoration of eye-lids. It was no easy matter to restore the cheek in this case, after the dissection of the scar, for though the flap had a wide pedicle, it was long, at its peripheral extremity. While I made a Thiersch graft on the left temple to cover the defect caused by the plastic, I adapted the borders of the right side directly in both instances, and union and healing resulted. But in such cases I prefer adaptation of the borders, as better cosmetic results are obtained, and less time is required for healing.

4th. *The formation of a nose.* This was done in the following manner: The inner lining was formed by two flaps from the cheek, which though narrow, furnishes enough material to insure epidermization. These two flaps did not meet the centre, but were turned as snugly as possible over gauze plugs. The remnants of the nostrils at the aperture were utilized to unite with the small snout-like projection of the cartilaginous septum. A triangular flap from the forehead was turned down and united as after described. The accompanying illustration indicates the condition at this time.

5th. Three weeks afterward the flap was cut off at its

base, and plenty of tissue left to cover the nose at its root. Unfortunately, a portion of the flap died out at this place, and a small opening remains showing root of nose.

6th. An attempt was made to close this opening by bringing the tissue more closely together, but this attempt failed.

In such a case it is not necessary to give a bony structure to the nose, and this would not heal under any circumstances.

Critique.—This case is remarkable for several reasons:

1st. Extent of destruction.

2d. The number of plastic operations necessary.

3d. The manner in which the healing took place.

As to the first, it seemed questionable whether we had the right to undertake the plastic at the time we did. Many of our colleagues disapproved of the attempt, but was it not our duty to relieve this poor girl, if possible? She was bright, and as the final result demonstrated, such a reconstruction was accomplished that she is at least presentable enough to be looked at without abhorrence. The more important question was whether the operation should be undertaken shortly after the eradication of the florid symptoms, or whether we should wait until it was possible to find out if recurrence would take place. I considered this for a time, but decided that as she was in the city, it was best to complete the work before she left for her home. If she were sent home, even with the defect healed, it was to be expected that the influence of the air upon the dried secretions upon the cicatrized formations of the mucous membrane, which itched considerably, would cause her to scratch these itching parts with her fingers, and the results would soon be annihilated. We observed that even under the watchful care of the nurses the child could hardly be prevented from poking her fingers into the large holes of her face, trying to remove scabs, etc. How much worse would this have been if she had gone back to her home in the country, and how quickly would the ulceration and bleeding have brought back the old conditions. These were my reasons for attempting the plastic so soon. In other cases of this kind, especially in full-grown persons, it may be advisable to wait.

The next question of interest is: Why were the remaining operations performed, and why were they so successful? As I mentioned before, I wished to ascertain at first whether any healing would take place, and therefore tried the experiment on the mucous membrane at the corner of the eye-lid. I wished to ascertain whether in this particular case the general rule would hold good that specific cases yield badly to union and healing. The good result proved that she had considerable re-constructive power. I concluded to undertake the restoration of the eye-lids first, because the secretions from this source would certainly have spoiled any operation on the nose. The conjunctiva was turned outward and secreted constantly. Tears, mixed with pus and mucous, constantly ran down the cheeks and these would have interfered with the result of the rhinoplasty. I, therefore, started on the eyes, and in order to find out how much could be accomplished, limited the first operation to the left eye. It healed, and this success encouraged me to try the same methods on the other side. I was sorry afterward not to have extirpated the scar on the left cheek at the same time, as in this way I might have gained healthy skin adjoining the future nose, and might have prevented a little accident, that is, a sloughing off of part of the forehead flap, certainly due to the presence of scar with poor circulation. Had there been healthy skin this circulation would have been much better. This taught me to avoid the same mistake on the right side, and I took a large enough flap to cover all defects. It is important to remember in all plastic operations, that healthy skin should be united to healthy skin or mucous membrane, and if possible, never unite to scar, otherwise, the results of union will be poor.

A very important detail in plastic surgery of the nose is to assure the shape of the nose by the use of some forehead skeleton. This was absolutely impossible in a case like the present, but nature had assisted slightly by leaving a portion of the septum cartilage projecting, thus assuring at least a slight profile of the nose. It was an object of the plastic to make the best use of this projection, first, for the formation of the nostrils, and second, for the formation of a roof. Had I taken a forehead flap only and turned it down in the old classical way recommended

by Diefenbach, the nose flap would have shrunk and crumbled and would gradually have atrophied, and perhaps even would have moved with inspiration and expiration. In order to give a certain solid form to such a flap, a lining must be obtained, but in this case it was difficult to get a lining of epidermis. The forehead was already so tense in consequence of the removal of the two temple flaps, that I could not spare the skin for two flaps, one for the inside of the nose and one for the outside. I therefore, decided to use a portion of the sides, that is, the cheeks as inner lining, stripping it off and turning it inward. Even if it did not reach to the central line of the septum enough epithelium was secured to insure epidermization of the inner surface of the nose, thus preventing contraction.

Another important detail is the formation of the external borders of the nostril. In most cases these can be obtained by the dissection of the triangular flaps on the side of the aperture. In most specific cases we find that the wings have been destroyed together, but that portions of them remain attached to the cheek. These portions may be used to advantage by turning them into their old places and they will certainly be preferable to the artificial wings made of a forehead flap.

The third point of interest to which I wish to refer was the method of healing and the restoration of the physiological functions of the nose and eye-lids. Before the plastic, tears ran down her cheeks constantly, producing an eczematous condition of the cheek, but after the plastic her cheeks were dry. The right eye gained almost its normal appearance, but the left eye caused us considerable trouble. There seemed to be a recurrence of the disease in the upper lid, melting away a portion of the same, and keeping it in a swollen condition. The nose very soon became functionally useful as a respiratory organ, and the voice changed immediately in a peculiar way. While her nose was missing, the girl's voice was almost normal, notwithstanding the fact that her palate was missing to a great extent, but immediately upon the restoration of the nose, her voice gained a nasal twang, which would only disappear by filling out the gap in her palate. This change was so striking that I have thought

it well to record the same. I shall not attempt to explain the cause.

Although undergoing so many operations, entailing considerable loss of blood, the girl rallied and was sent home, after being presented before the Medical Society where she had been shown once before by Dr. Baldwin when her disease was at its height. She is by no means a perfectly healed subject, where no other restoration or preparation could be performed, but I hope that after a time when she has gained strength and courage, to make some minor operative improvements, which will restore her face perfectly. It is most probable that after a time there will be an abundance of skin where it is now tense. We notice in plastic operations that we can produce skin by massage and by stretching, thus encouraging the growth of epithelium.

TRACHOMA OF THE CONJUNCTIVA AND ITS RELATION TO DISEASES OF THE NOSE.*

By Dr. Ziem,

Dantzig.

The conception of trachoma is undergoing a change. The traditional belief that it is a purely contagious disease, transmissible only from individual to individual, and then only by common use of towels and the like, and that this is the only means of contagion; or, what is only a recent modification of the same ideas, that trachoma is transmitted from some other already infected mucous membrane of the individual, by means of fingers or dirty clothing—all this is, of course, applicable to certain cases, but not to those others which after all compose the greatest number, Professor Feuer and his school to the contrary notwithstanding. Observation teaches that in many parts of the world, especially in the classical home of trachoma—the bottom-lands of Egypt and in Syria and Palestine,—trachoma does not appear at all seasons of the year impartially as it ought according to the contagious conception, but that the yearly appearance of the epidemic—or rather endemic, depends on certain general well-defined climatic or telluric conditions. As such the most important are: (1), excessive heat and sunshine; (2), dust and vapor, both of which act directly on the eye itself; (3), mold, especially in malarial districts, (a) swamp air affecting the whole respiratory tract particularly through the nose, from which, either by continuity of tissue or through vascular connections the conjunctiva itself becomes affected; or (b) by means of some agent entering the digestive tract, in drinking water perhaps, so that it is carried to the eye through the circulation.

(1.) Excessive heat and dazzling sunlight, as mentioned above, apply to our subject only in tropical or sub-

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tropical regions, e. g. the delta of the Mississippi, the Nile or the Ganges, in the Soudan, Arabia, Persia, on the plateau of Spain and Portugal, in Sicily, lower Italy and Greece, but not in the infected regions of the Rhine, of East and West Prussia, Poland or Scandinavia. In the tropics, in Bagdad for example, 32° north latitude, the bare sand has been known to have a temperature of 78° Cent. and of 55° Cent. in the shade; in the Sahara "where the earth is a fire, and the wind a flame," eggs can be cooked in the sand; even here, eye inflammation due to such causes, are almost never seen among the natives, although they do occur among foreigners. This was the case in the army of Alexander the Great, among the British troops in India, and this evident immunity of the bronze, copper-colored or black native of the tropics, is easily explained by the rich pigmentation of the skin in the face and eyelids, sclera and iris, as well as by the narrower pupil of the resident of the tropics (Lewkowitsch). All of these offer protection against the sun and admit the lowest degree of absorption, a condition which the natives intensify by painting the neighborhood of the eye with some dark antimonial material. Even in our northern latitudes we often see a catarrh produced undoubtedly by some intense (electric) light, although there is seldom any suppuration connected with it. Heat itself, notwithstanding German's theory, at least for the bare-headed native of the tropics, has but little influence on the production of eye-diseases. John Locke, in 1692, called attention to this where he says in: "Thoughts concerning Education:" The heats are more violent in Malta than in any part of Europe; they exceed those of Rome itself and are perfectly stifling, and so much the more because there are seldom any cooling breezes here. This makes the common people as black as gypsies, but yet the peasants defy the sun, they work on in the hottest part of the day without intermission or shelter from his scorching rays. This has convinced me that nature can bring itself to many things which seem impossible, provided we accustom ourselves from our infancy. The Maltese do so who harden the bodies of their children and reconcile them to the heat by making them go stark naked, without shirts, drawers, or anything on the head, from their cradles till they are ten years old.

I agree with German, that the Mohammedan has a most unsuitable head dress in his turban, although I differ from him in thinking that this is because it protects the head too little; I think rather that it, with the senseless habit of clipping and shaving the head, encourages neglect of simple hygienic rules for preserving the natural temperature, and thereby exposes the wearer repeatedly to catching cold. It would be interesting to see whether another headgear or even bareheadedness from childhood (with natural hair, of course) would not of itself reduce here the amount of eye diseases.

Since heat and excessive sunlight of themselves are not accountable for much trachoma or eye inflammations, let us consider a far more important factor.

(2.) The effect of vapor and dust upon the eye. It is quite usual to find an eye patient complaining that some particles of wood (sawdust), or of hay, meal, powdered marble or glass has fallen into his eye during work, although most careful examination fails to detect anything; now all symptoms cease soon after a thorough irrigation with plain water (or salt solution) and everting the upper lid; while without this, as I have often learned by experience, such an irritation may lead to the most pronounced swelling and catarrh. Blennorrhea itself may be simulated, especially if there exists at the same time any nasal catarrh to hinder the free drainage from the eye. One patient I remember, was treated by a colleague radically, even to mercurial inunctions, for nine months, with an advised operation to end up with; whereas, a few days' irrigations under my own care, the nose being equally treated, cured the eye with a vascular keratitis. Investigation showed that the first attack had been due to dust from the street! Often enough false diagnosis is thus given. I remember another case in 1895, when a laborer had suffered from sand blown into his eye a day or so before I saw him, producing a suppurating keratitis, which, in the opinion of a visiting colleague demanded treatment by the cautery, but which after a thorough irrigation to both conjunctivae and nose, and with a bandage, disappeared with the accompanying pain so completely that on the next day he was able to work. It is easy to imagine that even the application of the cautery would not have stopped the inflammation, for

the sand had been left in the conjunctival sack to continue its irritation.

Dust of this nature acts disastrously, when there is already a catarrh of the conjunctiva. Another patient, a glazier, with extreme swelling of the upper fornix, morning adhesion of the lids, etc., I saw in 1897. His disease had been called trachoma—although there were no follicles—in this case at the patients' request, I did not attempt a scarification but contented myself with a simple salt solution to irrigate the nostril and conjunctiva, and was very gratified, when I next saw the patient after a month's intermission, to find that a previously existing growth the size of a raspberry, in the upper fornix, had now shriveled to half its former size, either on account of the former radical irrigation that removed all irritation due to the particles of glass, or by reason of the attack on the nasal mucous membrane, on which the trachomatous poison had been destroyed. This patient was subsequently scarified occasionally, but soon after left Dantzig.

I have had similar experiences with workmen engaged on razing the old fortifications of Dantzig, who were often, during dry weather, exposed to excessive dust. In such cases many men who previously had had no eye trouble, and who had been released from military service as quite free from eye disturbance, now began to complain of noticeable swelling and hypertrophy of the conjunctiva, and were subject—as Jacobsohn also remarks—to a more or less intense suppuration, although without follicular growth, with simultaneous swelling and occlusion of the corresponding nostril. A few irrigations to both eye and nose ameliorated the symptoms noticeably, so that they seldom came back regularly for treatment, but escaped to return home, when their task had been finished.

Again, in 1880–82, in Alexandria, old European settlers have often told me, that eye troubles had noticeably diminished, since parts of the city had been paved so that the excessive dust raised by the high winds had been done away with. In Russia I heard the same story. Lemkomitsch, who practiced 14 years in Johannisburg, (South Africa), refers the numerous cases of trachoma among Boers and Kaffirs, who use no such utensils as towels or handkerchiefs, directly to the intense storms which fill

eyes, ears, nose and mouth with solid masses of sand. All efforts to rub away this sand are futile or else only half carried out, and the consequence is a great increase of even severe eye trouble. German, in Syria and Palestine, reports that during the hot dry months of September and October, many cases of eye trouble are traceable directly to irritation from alkali dust or from fine vegetable matter; this being a better explanation than his attempted explanation of infection by direct contact. It is a fact, also, that eye diseases diminish as the heat subsides and the rains begin; and that in parts of Syria, better supplied with springs and surface water, and consequently with better vegetation, trachoma is less and milder, than in Palestine.

Prof. Marshall, Zoologist in Leipzig, tells me that he has been in sand dunes during wind storms, and seen the surface so blown about that the clothing would be quite full of sand, the skin, face and hands feel gritty, that the mouth would be choked, and the eyes half blinded by the clouds. On some window panes, he continues, he has seen the glass so beaten by the sand that its transparency was altogether lost! Repeated effects of such sand storms upon organic matter like the cornea can well be imagined! It would be a profitable though a horrible experiment, to see how animals eyes would be influenced by such disturbances, especially in connection with simultaneous attacks on the nose; and to continue it further, whether worse results would come from purely mechanical irritation of itself—the sand being sterilized by heat or natural means—or from impure material—the sand being mixed with dung from domestic animals; that is to say, whether repeated mechanical irritation alone would suffice to produce a trachoma-like inflammation.

The conclusion from all this is that part, at least, of the eye trouble in trachoma districts can be traced to a moderate and repeated influence of dust or sand storms in deserts in Palestine, Hungary, east and west Prussia, etc., in districts that have been in historical times denuded of wood and therefore deprived of proper rainfall, and where therefore, under conditions that did not obtain in Spain or Gaul at the time of Julius Cæsar, or in Palestine at the time of Josephus, trachoma has found a home. It may

also be concluded that trachoma has assumed a milder form in parts of Syria better wooded and watered; or in Palestine, famous for its cedars! Does not the psalmist sing of the Cedars of Lebanon which the Lord has planted, in which the eagle builds his nest, and the heron finds his home, which built the temple of Solomon and supplied the fleets of the Phœnicians? To-day reduced to a grove of only 377 trees! In spite of Europe's increasing poverty of woods, lamented by Addison, Reaumur, Buffon and others, it is only since Alex. Von. Humboldt's time that its relation to moisture and moderate temperature has been acknowledged. Even Columbus, the immortal discoverer of America, whose meteorological knowledge has been often granted, ascribed the heavy and cooling rains of Jamaica to her wooded mountain peaks, and noticed that Madeira, the Azores and Canaries had lost in cooling rains since their woods had been so ruthlessly cut down!

The irritants hitherto discussed, act immediately upon the eye itself, although their effect is undoubtedly supported by their action upon the nasal mucous membrane as well. There remains to be discussed other poisons—vapors, emanations—which affect the nose primarily and are carried from there either directly to the eye, or through vascular connections to the conjunctiva and apparatus.

(3a.) Swamp air has been notoriously irritant during all ages. Even Empedocles (450 B. C.) recognized this fact, and a classical example of its effect upon the eye is found in Hannibal's history, who, when crossing the inundated shores of the Arno, fell sick of a fever and lost an eye therefrom. Whether this was really a case of acute trachoma with rapid destruction of the cornea cannot be proven, of course. There are still plenty of individuals who seem to overlook this factor in the genesis of trachoma, and who doubt that trachoma (especially with follicular growths) can be considered an accompaniment of malaria, that it is really a miasmatic infectious disease; although I have emphasized this relationship in 1893. Even such an authority as Professor Raehlmann, in Dorpat, slights the point by saying in a few words that "there can be no doubt of the climatic influences at work in certain localities." This is not enough; he should have said that this

factor can be shown to be present in an extraordinary number in almost all of the cases. For example, Finland is the most trachomatous country of Europe, and here at times eleven per cent. of the surface of the land is swampy or actually inundated. The conditions are about the same near Triest, Wilhelmshafen, and St. Petersburg; in the reedy country of Poland and Galicia, in Liveland about the Dnieper, the Rhone, Po and Arno, the Rhine, the Volga, Tagus, Mississippi and many other rivers, where the outbreaks of trachoma are often associated with acute attacks of malarial fever. Schmidt-Rimpler's *dictum*, that every cold does not lead to trachoma—in so far as it is a scientific assertion, not an epigram—must be accepted, but the same is true of laryngitis, acute middle ear suppuration, or of sinusitis. Unfortunately Schmidt-Rimpler fails to state how he made out that his cases of trachoma had no nasal symptoms. I myself have shown that in most instances simple inspection—either anteriorly or posteriorly—does not suffice either to exclude sinusitis or even simple suppuration itself, since to demonstrate the latter a thorough irrigation is often necessary. In fact, with this irrigation, even after a rhinoscopic examination, pus may be brought away. If then, Schmidt-Rimpler had not practiced this irrigation, we cannot admit the truth of his assertion. This connection between trachoma and nasal infection I emphasized in 1886, as did Nieden in Bochum, (Westphalia,) Vocher in Orleans, Sattler in Leipzig, (298 times in 443 cases or 65 per cent). Kuhnt in Koenigsberg, reports the same results referring to my own investigations, although he is not explicit enough in showing that these investigations were made by me and not by him, or without mentioning directly that with my pump even a higher percentage could have been found. Again, a pupil of Schmidt-Rimpler's, Hoppe in Elberfeldt, declares that in the richly trachomatous Masuren (East Prussia,) he found ozena surprisingly frequent.

All this goes to prove the intimate connection between trachoma and nasal catarrh, and explains, what I had already confirmed five years ago, that many patients with one-sided trachoma will be found to have a nasal catarrh on the same side, and that moreover, not unusually the localization of trachoma in either the upper or lower for-

nix will be found associated with suppuration of either the frontal or superior maxillary sinus, so that the inflammation must have been extended by means of the vascular anastomosis of the nasofrontal or infraorbital vessels to either the upper or lower lid.

I must mention, too, that in trachoma it is not unusual to find an elevated temperature of the skin of the nose, indicative of inflammation within; in some instances I have even seen radical operations on the lids performed by skilled surgeons, but they ignored the possibility of a simultaneous nasal inspection and consequently the inflammation returned the same as before. I remember one instance very well; the case was presented in August, 1896, to Professor Silex of Berlin. It was a hotel servant who, for admission to military service had nearly been compelled to submit to operation; a year later, after sleeping in a barn for some time, he showed all over that part of the upper lid exposed to view by simple eversion, a mass of trachoma granulations, while he had in addition a catarrh of the eye, and a most decided suppuration of the nose. After he removed from the barn to better lodgings, and when the eye inflammation had been subdued, I even then firmly maintained the opinion that a second operation on the conjunctiva or a radical excision of the tarsus would have no lasting effect, and that to fit him for military service the only proper treatment for the cure of the trachoma—which was causing the nasal catarrh as well—would be to attack the nose at the same time, and to send the patient thereafter to the drier climate in the woods, or to the purer air of the sea.

The same relationship will help to explain the relapses in nearly 50 per cent. of cases of trachoma; even after radical excisions on fornix or tarsus reported by Greff in Berlin, and Hoppe in Elberfeldt. Unfortunately Greff's investigations took no account of this relationship to the nose; those of Hoppe mentioned only cases where ozena was very marked. Kuhnt, contradicting a statement made to me in 1894, in Koenigsberg, says: that he now has better results in treating trachoma, when he attacked the nose at the same time. It is worthy of remark, and of importance too, in connection with Greff's assertion that trachoma runs in families, that occasionally only one mem-

ber of a family is attacked, although all of them have exactly the same environment; this particular individual will, on careful examination, be found to have a profuse, stinking nasal catarrh, due probably to some preceding fever of an eruptive nature, while all other members of the family, who escaped the fever, have no eye symptoms beyond a simple follicular catarrh, at most. I have seen plenty of such instances, as did my lamented colleague, Scheller.

In cases of this nature a direct contagion from person to person, an immediate contagion of the eye disease, must certainly be excluded. My observation teaches me that the cause is rather a malarial-like infection, excited by dwelling in low, damp, unhygienic rooms, where cattle and all the necessaries of labor are huddled together; here a nasal catarrh begins, continues and spreads—as it does to other organs—to the eye itself, either along the lachrymal passage (no previous disturbance here being necessary, as I in 1895, have shown contrary to Nieden), or by vascular connections, and finally leads to a keratitis vasculosa, and especially to follicular growth, a condition not always demonstrable when the exciting cause is dust alone. This acts in the same way as does any other infectious disease, typhoid or tuberculosis.

This conception, not yet however established in all details, explains the relative immunity, noticed by Swan Burnett, that the negro enjoys against trachoma. The negro, it seems, sweats easily, and is therefore free from malaria. It also helps to explain the freedom Berlin enjoys from malaria and trachoma, not because of its excellent hygiene, as Hirschberg thinks, but because it is built on a sandy and unmalarial soil.

(3b.) Malaria may also be acquired by drinking water (Roe), and in that way through the system affect the eye. This explains my own experiences in Alexandria, where I suffered from African fever; but such a means of infection is not so clear as those I have previously given.

These researches, if pertinent, must give us a clew to the treatment of trachoma. At the very outset I must oppose the well accepted idea that local applications, or radical operations, are the only means of cure. As a matter of fact, the excision of the fornix or tarsus is no radical

operation, or else there would not be relapses so often following it (50 per cent, as Greff says). Greff even reports a case where the conjunctiva was practically excised on its entire palpebral area; Hoppe also reports a similar case where scarcely any conjunctiva was left, and yet there were relapses with granulations and pannus. I maintain that all such methods of treatment attack merely the symptomatic conditions; by excising hypertrophies and tarsus, or by expression of granulations by means of Knapp's roller forceps, one removes only the results of the inflammation which, in the one case might be called dust trachoma, in the other, swamp trachoma, while the true means of treatment, according to my argument above, ought to have been to attack the original cause itself, acting in the first case by the irritation of the poisoning dust on the conjunctiva, nose and perhaps adjacent cavities, in the other case through a general systemic poison in the blood itself.

To squeeze out granulations, from which even Greff expects no lasting good, is, I think, analogous to a treatment of typhoid or tuberculosis in which one would cut or squeeze out only the pathological glands of intestine or other mucous membrane, leaving the poison in the blood to pursue its destructive course; or as if a case of pharyngitis with associated nasal catarrh, were treated time and again with the cautery, leaving the inflamed mucous membrane of the nose to continue in the same unhealthy state. To excise the fornix and tarsus appears to even such an authority as Raehlmann in Dorpat, who has seen unfortunate results from the hands of other ophthalmic surgeons, to be no more than an intense bleeding, somewhat more intense than a mere scarification.

In my own cases I have followed the plan of making my treatment rather dietetic and gentle, even when I resorted to scarification; I have irrigated the conjunctival sack, the nose and nasopharynx; I have applied some soothing poultice in gauze to the eye itself; where the cornea was ulcerated I have used heat, as usual; I have on occasions massaged the conjunctiva with some soft substance like lufa sponge soaked in a simple soda solution, followed by cooling applications; I have attempted by means of Drouot's plaster to provoke a mild counter irritation about

the nose and nasopharynx, applying it not on the mastoid but rather on the retrolobular region; I have forbidden alcohol, have insisted on a normal condition and even temperature of the head, prohibited the useless washing of it that so often leads to a fresh cold, and ordered stopped the irrational cutting or shaving of the hair, especially in persons like Egyptians who wear turbans or such headgear; I have insisted on warm foot wear, cold or warm foot baths (John Locke, 1692,) or rubber overshoes; I have ordered that most important of all conditions for eye or nose, fresh air and plenty of it, morning, noon and night; and I have tried by abundance of pure water drinking, to overcome any nervous condition which would be so harmful to all pathological states in eye or nose.

By such simple means, in treating persons living under somewhat decent circumstances—hospital attaches, soldiers, etc., I have been able to accomplish very good results, if not a complete cure, and I have at last made them able to work. The lowest classes, those living the life of the poorest animals in cellars or even out-houses, I have treated as best served for clinical purposes, hoping that a not distant future may allow a treatment of them, especially in times of epidemic, in barracks or tents, where the proper surroundings may be preserved. Even here I hope that mild measures will in many cases overcome the seeming necessity for operation.

It is not enough, however, to deal only with the treatment of individuals after the disease is established; we must attack relapses of course, but we must also make every effort to eradicate the cause itself. We must instruct the masses by school methods in the necessity of clean dry dwellings and workrooms, of cleanliness in every sense of the word. When an epidemic prevails we must investigate and overcome dampness and bad air of any kind. We must prevent overcrowding in living and work rooms. For the common good we must establish proper drainage and water supply for all, at public cost; we must prepare proper suburbs for wage workers near large manufacturing plants and by public intervention overcome improper child labor.

On swampy soil, houses must be built in a proper manner—with good foundations (as in St. Petersburg or the

Netherlands.) Cities must have proper sewerage, the country must be drained, the drinking water must be pure; if there is no natural supply of water, cisterns or artesian wells must be supplied. Even in such a great city as Koenigsberg, in 1894, there was no proper drainage, so that the house vats with fecal matter stank unceasingly when carried away in the morning; it is not unjust therefore, to ascribe to such a condition the prevalence there of all kinds of catarrhs. Swamps and shore areas must be dried, but not turned into a barren wilderness so that the opposite effect of dusty wastes be the result. The suitable meteorological conditions must be maintained. Dense woods must be thinned, the sun must have access to hitherto impenetrable forests, so that the climate may be properly changed, as in Finland, the most heavily wooded territory of Europe (57 per cent. forest) where the climate has been made essentially milder, by careful forestry. All this will prove our strongest method of combatting trachoma at its source. If the Mississippi were thinned of its primeval woods along its course, its floods prevented—if forestry laws, as in Switzerland since 1874, in the United States since 1891, were thoroughly established, if woods were built where needed, much would be accomplished to ameliorate the condition of our race.

Mankind has learned during the march of years and centuries, sometimes alas, not to his advantage, that the face of nature can be changed. He must still learn that it is only by a wise change of nature's face in future, that many of the ills—such as trachoma—from which he now suffers, can be blotted out.

NASAL INSUFFICIENCY DUE TO EXAGGERATED PROMINENCE OF THE ANTERIOR ARCH OF THE CERVICAL VERTEBRÆ.*

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The condition of which I wish to speak very briefly this evening has a relation to the perennial subject of lymphoid hypertrophy in the pharyngeal vault. After all that has been written on this topic, one may well apologize and especially to the members of this Section for daring to reopen the subject. Since its masterly exposition by Wilhelm Meyer some thirty years ago, very little has been added to alter our general conceptions of this morbid condition. It's outlines were so graphically sketched by a master hand that later writers have done little more than to fill in comparatively unimportant details. We have learned that the possibility of certain complications must be borne in mind and the great number of operations done has in certain ways enlarged our range of thought.

In my own work, I have in two instances met with a condition which I have not seen mentioned in any of the text-books nor until recently in any current publication.

In 1895 in a paper read before the French Society of Laryngology, under the title of "A Critical Examination of Certain Rare Cases", Castex said that "numbers of children pass for cases of adenoid disease who have only a scoliosis of the septum or who have the vault of the nasopharnyx shortened in its antero-posterior axis or with a wall projecting forward, the latter caused by an exagger-

*Read before N. Y. Academy of Medicine Section in Laryngology at stated meeting Jan. 25, '99.

ated hypertrophy of the atlas or of the odontoid process of the axis. In some instances the patient seems to have adenoid disease when he has not, or more rarely may appear free from it when he really has it."

In passing it may be remarked that he says also that adenoids of the posterior wall of the pharynx and not in the vault are more common than is generally taught and that copious hot irrigations with the Weber siphon will prevent the necessity of surgical interference in very young children. Of the truth of the first of these two statements, I am quite convinced; of that of the second, I am somewhat sceptical.

In a paper read before the same society in 1896 by Escat, under the title of "Congenital Stenosis of the Nasal Fossæ and of the Naso-Pharynx," he observes that this stenosis, found especially in individuals of mental deficiency, included among others, cases of prominence of the posterior wall of the pharynx but in such cases this deformity was but an anatomical detail among others which together constituted the general atresia of the naso-pharynx. Escat calls attention to the fact that both Ziem and Delavan were able to induce an arrest of development in animals of the bones of the face and thorax by causing occlusion of the upper air passages. In an examination of 113 children in one of the waif-colonies in France, Balme found 56 cases of adenoids or of other tonsillar enlargements but among these classic deformities there were other deformities manifestly not due to adenoids, such as multiple deformities of the skull and skeleton which constituted stigmata of degeneration.

Some writers with a vivid imagination have tried to deduce from this the conclusion that adenoids themselves are stigmata of degeneration but for the sake of the rising generation of the city in which we live, it is to be devoutly hoped that this latter conclusion is false.

In May of the present year, Mendel (in a paper still before the same Society) gave a brief study of this condition basing his statements on four cases which had been under his personal observation. He divided them into three categories:

1. Those with an osseous projection situated at the level

of the buccal pharynx with the coexistence of adenoids, one case.

2. Those with an osseous projection in the rhino-pharynx with the coexistence of adenoids, two cases.

3. Those with an osseous projection in the rhino-pharynx without the coexistence of adenoids, one case.

CASE 1 was that of a boy aged seven years with obstruction to nasal breathing. There was an osseous projection in the middle line of the buccal pharynx. It did not extend up into the rhino-pharynx and was regularly rounded. Adenoids were present. An especial symptom in this case was dysphagia. Breathing was better at night than in the day time. This paradox is explained by Mendel as due to the fact that in the day time the tonicity of the soft palate kept the latter in contact with the projection thus shutting off the air current from the rhino-pharynx. At night however, the palate was relaxed and so there was free space.

CASE 2 a girl of 8 years with classical adenoid characteristics. Osseous projection in the naso-pharynx; above it were adenoids.

CASE 3 a girl of 4 years. Rhino-pharyngeal projection causing almost total occlusion of breathing through the nose. The vault of the pharynx was free from adenoids.

None of these children presented any suspicion of hereditary or acquired syphilis or tuberculosis. A rather curious fact is that the father of case 1 presented the same anatomical peculiarity as the child but had no symptoms therefrom.

Two pertinent inquiries made by Mendel: should we operate for adenoids in these cases when they are present and if we do, what is the prognosis as to effectual removal of symptoms of obstruction?

In reply to the first, he advises operation. The osseous projection, he says, constitutes two-thirds, so to speak, and the adenoids one-third of the obstruction. If we cannot remove the latter entirely, let us do what we can.

As to prognosis, it is well to caution parents against expecting too much from the operative procedure. They should be informed as to the double condition present and be made to understand that it is partly removable and partly not. Otherwise if the symptoms continue, the physician may be charged with having done a useless opera-

tion and one not necessary or he may be accused of having done it improperly.

Some modification of the customary use of instruments may be necessary in these cases for it may be difficult to introduce the usual curettes and forceps into the vault owing to the osseous projection. Smaller instruments than those usually employed may suffice or the finger may be relied upon. As the patient grows older the projection gradually becomes relatively less in size and finally as in the case of the father above referred to, cease to give any trouble whatever.

I have met with two cases in which this condition was present. In neither was there sufficient bony obstruction to prevent the employment of the customary size of forceps or curette. In both the vegetations present covered the mucosa stretched over the projection in the rhino-pharynx and ran up beyond it into the vault. One case occurred some two years ago at the Demilt Dispensary but did not return after the operation and I have not been able to follow it up. The other case was that of a ten year old son of a colleague. In this case, there was a moderate amount of obstruction but the results of curetting have been all that could be desired.

118 West 69th Street.

DELUSIONAL INSANITY RESULTING FROM AUDITORY CONCUSSION.

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Mr. F. M., age 38. His family state that he has been somewhat of an epileptic for many years. Examined Sept. 7, 1897. He said he never had any trouble in ears until some ten years ago when a gun was fired very close to his left ear. That there was a loud ringing in ear immediately after and has continued ever since. That hearing in that ear has been affected ever since, and that at times hears loud reports like that of a gun firing. Hearing R. E. Low, conversation normal. L. E. Low, conversation 4 ft. Fork L. E. heard better by Gruber's test. R. E. Watch 1 ft. L. E. Only on contact. R. E. Drum not opaque or retracted. L. E. Drum semi-opaque and congested about manubrium. Tubes open. Slight pharyngitis.

Examination of eyes: Javal astigmometer—1.5 D astigmatism ax. 90 both eyes. Retinoscopy (atropia) each eye —.75 at 90; + 1.5 at 180. Types R. E.— .75 sp ⊃ + 1.5 cy 90 = 5/5. L. E.— 1. sp ⊃ + 1.5 cy 90 = 5/5. Pupillary distances equal. No unbalance of oblique muscles. Other ocular muscles not tested. Glasses were given to be worn constantly as I desired to ascertain if ringing in ears and epilepsy could be due to eye strain, or aggravated by eye strain.

He says that he never had noises in the ears or deafness before the gun was fired near him.

His glasses have not given any relief, and taking this fact with the history we can eliminate eye strain as a cause. Eye strain—crossed astigmatism in particular—will cause ringing in the ears and epilepsy.

The concussion of the left auditory nerve from the report of the gun has caused deafness with partial degeneration

of left auditory nerve and consequent hallucinations of hearing.

Epilepsy aggravates, and may be one cause of his delusion of hearing.

I append a letter just received from him in answer to mine, asking him if he wore his glasses, and if the noises were as bad as ever.

"DEAR SIR:—

"Yours at hand. You seem to think I am troubled with ringing and noises in my ears.

"Ever since the shot-gun was fired at me passing my right ear, I have been worried by loud noises not in my ear but external noises (such as slamming doors and unlooked for shooting, etc.). It feels as if someone were striking me in, or some place near my ear. On a farm it is not convenient to wear glasses all the time, but I wear them considerably at night.

"If you could imagine my feelings about the hunting season you would about know my trouble.

"Yours truly, F. M."

"BILATERAL AURAL LESION FOLLOWING TRAUMATISM."

By James F. McCaw, M. D.,

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Mrs. S., aged 27 years, housewife, consulted the writer June 1, 1898, for difficulty of hearing, and from her the following history was elicited:

Family history negative. She had always been perfectly healthy with no trouble from her ears until nine months before, when she fell, striking the back of her head. Immediately she was seized with headache, epistaxis, vertigo, nausea, vomiting and severe tinnitus, but retained consciousness. A physician was consulted who prescribed a sedative, when the symptoms gradually abated, and at the end of about four days had entirely disappeared, except the vertigo and tinnitus, which continued, but with diminished severity. At this time her hearing suddenly failed so that she was almost totally deaf during the evening, with slight improvement after a night's rest, but gradually getting worse again toward evening. This phenomenon was noticed for about one week after which there was no appreciable difference in hearing between morning and evening, the deafness being well marked with constant tinnitus. The dizziness gradually disappeared and was entirely gone at the expiration of ten days to two weeks. For about four weeks following this, there was slight improvement of hearing in the right ear. Six months after the accident only slight improvement having taken place, she consulted a specialist and says he removed something from her throat, but without the slightest benefit to hearing. Upon examination, the canals, tympanic

membranes and middle ear revealed nothing abnormal. There was found a high degree of impairment of hearing, spoken words were heard only when very loud and close to the ear, and then uncertainly. Watch tick not heard. Perception through the solid media of the skull was very much diminished, especially so for the high tones, which were not heard by air conduction. These findings were all exaggerated in the left ear. Tuning fork lateralized to the right side. Although the writer saw this case when far advanced (nine months after the commencement) he prescribed pilocarpin, potassium iodide and strychnine, but for the month she was under observation there was no improvement. At this time she passed from under observation and has not been seen since.

While this case is apparently one of double labyrinthine trouble, well borne out by the functional examination, the kind and exact location of the lesion or lesions are still matters of conjecture. These cases are exceedingly rare and have not been sufficiently studied to give us much light on the subject. In reviewing the literature at my command I find only one case reported which bears similarity to mine; that is one reported by D. Kaufman in the *Vienna Medical Journal*, 1897, an abstract of which is found in the May number of the ANNALS OF OTOLOGY, RHINOLOGY AND LARYNGOLOGY, 1898. In this abstract it is said, "Kaufman seeks to account for the labyrinthine affection on both sides by the sudden pressure brought to bear through the trauma and the spreading of this to the perilymphatic tracts and thence by means of small consecutive hemorrhages to the parietes of these tracts. In consequence of the hemorrhages there were disturbances of nutrition and deafness."

It seems to me that this theory best explains the findings in my case although probably the disturbances of nutrition had not progressed as far in this case, or more improvement had taken place before I saw it than in Kaufman's, as slight sound perception for low tones was present on both sides. While the writer favors this theory to explain the findings in this case, nevertheless when we consider the extreme rarity of symmetrical traumatic lesions and the complexity of the acoustic apparatus, we must admit there remains still a doubt concerning the accuracy of our diagnosis.

THE TREATMENT OF UNCOMPLICATED SUPPURATION OF THE MIDDLE EAR.*

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The treatment of suppuration of the middle ear unattended by any complication whatsoever, such as, *e. g.*, mastoiditis, extradural abscess, sinus-phlebitis, etc., will receive our attention in this article. It is a subject of sufficent importance if it only teaches us never by any chance to be guilty of advising procedures which will tend to bring about these complications, many of which are difficult to diagnosticate and still more difficult to cure. Also, if by the early and judicious treatment of an acute suppuration the too frequent development of the chronic condition may be guarded against. In the vast majority of cases this growth from the acute to the chronic process may be prevented by such treatment.

What is it well to do, in case of impending acute suppuration of the middle ear? First, the causative element should be unmasked and appropriate measures taken to counteract its influence. Should an acute naso-pharyngitis be discovered, it is well to order warm, mildly antiseptic nasal sprays for cleanliness and a mild, mentholated oil to keep down the swelling so that the nasal cavities can be cleared without further danger of forcing infective material into the ear through the eustachian tube. If a tonsillitis is at the bottom of the trouble, it should be treated by gargles, astringent or stimulating applications, incision and constitutional measures, as may be indicated. Teething and dental caries should early receive attention. Unfortunately in the exanthemata, the middle ear inflammation is one manifestation of the disease process and is not dependent upon transmission of infection from the naso-pharynx; the most we can do then is to limit further

*Read before the Brooklyn Medical Society Meeting of March 18, 1898.

infection through the eustachian tube, treat the general disease and give such attention to the ear as the general condition of the patient renders possible and advantageous.

Should the attending physician be so fortunate as to be called in during the inception of the attack, he should, providing the intensity of the inflammation does not contra-indicate it, very gently inflate the ear by means of the Politzer bag, after having rendered the naso-pharyngeal tract as nearly aseptic as is possible. Inflation should be practiced with the aid of the otoscopic tube so as to use no more force than is just sufficient to open the eustachian tube. This procedure, in conjunction with the use of naso-pharyngeal antisepsis, will often prove adequate to abort an attack.

If seen early and in a sturdy patient, local blood-letting is often of great value. From three to four leeches may be applied in an adult, two in front of the auricle and one or two behind. In a child, one leech in front of the auricle is sufficient. The skin just in front of the tragus, as close to it as is possible, should be surgically cleansed and the leech applied by means of a leech-glass, one aperture of which is firmly pressed against the skin and through the other aperture the leech is prodded until it takes hold, it being necessary at times to incise the skin previously. So soon as a firm hold is taken, the leech-glass is withdrawn and the leech permitted to hang on until the weight of the abstracted blood causes it to loosen its hold. Behind the auricle, the leech should be applied on a level with the orifice of the canal and close to the posterior auriclar furrow. Bleeding is to be encouraged by applying moderately warm moist cotton pledgets. After enough blood has been lost the bites should be antiseptically cleansed and the bleeding stopped by pressure, cold, or if need be, by local hemostatics. Blood-letting should not be tried with feeble or anæmic persons.

This should be immediately followed by hot douchings through the external auditory canal. For this purpose any fountain syringe holding about one quart of liquid will serve. The reservoir should be suspended just a trifle higher than the patient's head, force of current not being desirable as it may mechanically irritate the tympanic structures. To the hard rubber terminal of the syringe is

affixed a soft rubber tube, of smaller calibre than the orifice of the canal, projecting half an inch beyond the distal end of the terminal for introduction into the meatus. This soft rubber terminal is to be introduced to its full extent in adults and older children but only to just within the orifice in infants. The liquid used should be as warm as the patient can bear with comfort and may be either sterilized water or a solution of boric or carbolic acid in sterilized water. From a pint to a quart of the liquid should be used at each sitting and the sittings should be at intervals of from one to three hours, according to the severity of the symptoms and the age or intractableness of the patient, it never being good practice to use the douche so frequently in infants or intractable children that they are kept in a constant state of nervousness and the ear in a constant state of engorgement from crying, struggling, etc.; here warm applications by means of instillations and hot, moist or dry cloths or the hot water bag are better.

Following each application of the douche the canal should be thoroughly dried out by small cotton tampons, formed on a cotton carrier and then removed from the carrier and introduced by the fingers or forceps, which are left *in situ* for a few minutes and then withdrawn. These tampons should be about one and a half inches in length and fluffy on the distal end, so as not to irritate the drum membrane. The thorough drying of the canal after douching is of great importance; it prevents maceration and exfoliation of the epidermis with the swelling and infection so often attendant upon this condition of the skin; it is also very necessary, if there is a coexisting otitis externa, as a preliminary to the use of medicaments. The drying out should never be done except with the greatest gentleness and caution, the attendant always being required to demonstrate his ability in the presence of the physician, after instruction.

Finally, the orifice of the canal should be stopped by a pledget of cotton between the douchings, so that by no mischance a draught of cold air may enter the ear.

The writer has never seen any benefit accrue from the popular practice of instilling medicated solutions, *e. g.*, laudanum and sweet oil, etc., into the ear, so long as the drum membrane was unbroken, other than might arise

from the temperature of the instilled solutions. Benefit is obtained from the temperature of such instillations but mostly in very mild cases that would have done just as well, if not better, under the use of the hot douche of sterilized water; while in the severe cases the temporary benefit derived is more than counterbalanced by the softening of the epidermis, the irritation through the presence of rancid solution and the consequent infection.

Bodily rest is of the greatest importance and should be strenuously insisted upon, all occupation being absolutely interdicted.

A light diet should be ordered and all spicy foods, alcoholic stimulants and the use of tobacco denied.

The bowels should receive attention; a good purgative controlled by an opiate to secure easy and painless stools often doing heroic service.

The normal quantity of sleep should be obtained by the administration of soporifics, where required, combined with laxatives to relieve the bowels.

Two constitutional remedies exert a beneficial influence on the middle ear inflammation, atropine and pilocarpine. The former in small and repeated doses tends to limit the formation of secretion in the tympanum; the latter, to be given to robust persons only, in doses of $\frac{1}{12}$-$\frac{1}{8}$ gr. once or twice daily either by the mouth or hyperdermatically, relieves vascular tension if carried to the physiologic limit. They should, of course, not be given to the same patient.

Those cases in which there is considerable radiation of pain of a neuralgic character around the ear will often obtain great relief from a liniment containing chloroform, opium, belladonna or aconite well rubbed into the skin in the neighborhood of the auricle.

Should all these procedures fail to cause the subsidence of the otalgia and of the constitutional symptoms within a reasonable time and, especially, should bulging of the drum membrane threaten its integrity or the intra-tympanic pressure threaten the life of the contained structures, then paracentesis should immediately be done. With even less delay if the middle ear inflammation is one of the manifestations of an exanthematous disease, as in this case the vitality of the tympanic structures may be destroyed with appalling suddenness.

Having decided upon the performance of incision of the drum membrane, the first step to be undertaken is the thorough surgical cleansing of the external auditory canal. This may be attained by syringing with a warm aqueous solution of tincture of green soap followed in a few minutes by a syringeful of warm sterilized water and thorough drying with cotton tampons. Alcohol, 95 per cent., is then instilled and the canal again syringed with a solution of carbolic acid, 1-40, in sterilized water, the canal again being thoroughly dried out with sterilized cotton tampons. A sterilized speculum is now introduced and under good illumination an incision is made into the most prominent portion of the bulged membrane and extended downward to the lowest limit of the inflamed membrane. If there is a chance for choice the posterior inferior quadrant of the drum membrane is the site of election.

The middle ear should now be gently inflated to drive out the contained secretion, which must be wiped away thoroughly by aseptic cotton tampons. After the canal is entirely dry, the bleeding having stopped, a wick of antiseptic gauze is carried up to the membrane and permitted to lie loosely in the canal and the concha of the auricle, being covered externally by absorbent cotton and the whole kept in place by a few turns of a gauze bandage around the head.

If now at the first dressing, in 6-12 hours, the pain is much relieved and the tympanum seems to have been well drained, the canal is simply dried out with aseptic cotton tampons, after a gentle inflation, and a fresh dressing applied as above. It will often be the experience to find the canal perfectly dry and the drum membrane entirely healed after the second or third dressing. This form of treatment, first advocated by Haug, of Munich, should be persisted in so long as the discharge is not profuse or until symptoms of irritation or retention appear, the dressings being changed at least twice a day.

Should the discharge be so profuse as to keep the dressings continually soaked or should symptoms of irritation or retention appear then it becomes necessary to change the plan of treatment and resort to syringing.

So long as the only desire was to apply moist warmth to the ear, douchings were all sufficient but they have not

enough force to wash out secretions from the depth of the canal and their prolonged use encourages tissue swelling and the formation of granulation and polypoid tissue, the most prolific causes of retained secretion and its sequelæ. On the other hand the repeated short, sharp impact of a column of water in syringing, while undoubtedly more irritating to the sensitive structures during its continuance, yet by breaking up and cleaning out the secretions more thoroughly, leaves these structures better able to cope with the effects of the inflammatory process.

There are two syringes on the market which are fairly efficient for lay use, the one ounce hard rubber syringe and the soft rubber ulcer and aural syringe manufactured by the Davidson Company; the glass syringe usually recommended for ear use is an abomination, being too small, without sufficient force and having a terminal poorly adapted for application to the meatal orifice.

Instructions should be given to the attendant as to the correct way in which to hold the auricle during the syringing. In small children the auricle should be held outward, downward and somewhat backward, in larger children and adults it should be outward, backward and upward, the lumen of the canal thus being most perfectly straightened. The terminal of the syringe is then introduced into the orifice of the canal and the stream directed inward and slightly upward, in adults also somewhat forward.

At least a pint of liquid should be used at each sitting and the syringings repeated every 2 to 4 hours according to the quantity of the discharge.

Any mild antiseptic may be added to the sterilized water but this is not so necessary if the canal is thoroughly dried after each syringing; the only purpose an antiseptic serves being that of preventing infection of the skin surface, as the solution never reaches the middle ear. The middle ear is not contaminated from the canal if the latter is kept clean and free from decomposing secretions.

In treatment by syringing, as well as with gauze, it is of vital importance to provide for thorough drainage from the middle ear cavity by such a free incision in the drum membrane that all parts of the cavity are in communication with the outlet. For this reason, whenever the per-

foration seems inadequate, the opening should be enlarged by carrying the incision from under the posterior fold around the periphery of the drum membrane to the antero-inferior quadrant, being careful to incise the membrane only and not to disturb the ossicular chain by entering too deeply. This is the more important as cases are on record in which, because of dehiscences of the bony inner tympanic wall, the bulb of the jugular has been penetrated with alarming, if not fatal, hemorrhage. If the tympanic attic is involved, the incision is to be extended through Schrapnell's membrane and even up into the attical space. This latter procedure is especially indicated since Forns has shown that normally there exists, in the majority of cases, no communication between the tympanum and the attic, membranous folds completely dividing these spaces from each other.

Following syringing, the canal should be gently and thoroughly dried and the orifice stopped with absorbent cotton, the saturation of which by secretion at any time previous to the expiration of the regular interval indicates the necessity for another syringing.

At least once a day, after syringing, gentle inflation by means of the Politzer bag should be practiced, extruded secretions being removed in the usual way. This manipulation empties the tympanum of secretion, prevents the formation of adhesions and improves the hearing: the chance of forcing infected material into the mastoid cells not being worthy of consideration when contrasted with the benefit to be derived, and this seems especially problematical since Forns' experiments and since Politzer has shown that the same process exists in the mastoid process. "In all cases of suppurative otitis media in which there did not exist during life any trace of inflammation of the mastoid process, and where an autopsy was made, we constantly found pus in the mastoid cells." (Ann. des mal. de l'or., 1892, No. 5.)

It is the writer's custom never to insufflate powders in cases of acute suppuration. The powders never reach the inflamed surface, the perforation being too small, and they tend to pack into the fossa between the drum membrane and the antero-inferior canal wall; thus interfering with cleansing, forming a nidus for decomposing secretions and,

most important, obstructing the perforation and causing retention. If the discharge is so slight as to make the powders of any use then the antiseptic gauze wick carried to the fundus of the canal answers the purpose much more satisfactorily, as it not only absorbs and disinfects the discharge but also keeps it away from the skin lining of the canal, thus providing against the disturbance of the epidermal cells so frequently seen when powders, such as boric acid, are used.

Any other conditions which arise during the course of the treatment must be treated according to ordinary surgical principles; thus granulations obstructing the perforation must be removed, etc.

Under this method of treatment most of the acute cases will naturally proceed to perfect recovery with closure of the perforation.

Should the process become chronic under treatment or should the patient present himself while suffering from a chronic otorrhea, then the treatment must be regulated according to the conditions found at the examination.

First and foremost it is necessary that access to the tympanic cavity be perfectly free. To this end all granulation tissue must be removed and its recurrence prevented. The opening through the drum membrane must be sufficiently large to permit remedies to penetrate easily into the tympanum. It is the writer's custom whenever the perforation is at all small to excise, under cocain anesthesia, a large segment of the drum membrane in the region of the pre-existing perforation. No hesitancy should be felt in undertaking this procedure, the regenerative power of the membrane being equal to bringing about a closure of the perforation in the course of healing in the majority of cases. In case the perforation is or has been made sufficiently large, the treatment may be continued with the knowledge that the remedies will probably reach the diseased tissues, if rightly applied.

Next in importance is cleanliness. This is attained by syringing, at home, with any mild antiseptic solution, preferably boric or carbolic acid in boiled water, as in the acute stage; the syringing being always assisted by thorough drying out of the canal and stoppage of the orifice with cotton. At the office, the writer first syringes with a

weak solution of tincture of green soap in water, removes this by a syringeful of boiled water, inflates the ear, drying out any expelled secretion, then exerts gentle suction by means of the Siegel's otoscope to remove any secretion clinging to the crevices in the tympanum, drying out the same with cotton. The ear is then syringed with a mild carbolic solution and again gently dried, following which lukewarm alcohol is instilled and left in place for a few moments. The alcohol is thoroughly removed and the ear is in shape to receive such medication as may be indicated. Of course, if Schrapnell's membrane is perforated the attic should receive attention. For syringing the attic either Hartmann's canula, attached to an Alpha syringe by means of a slender rubber tube, or a canula devised by the writer may be employed; the latter instrument only being applicable when the ossicles have been thrown off by nature or removed surgically.

If the recesses of the tympanum or attic are found to be shut in by bands of fibrous tissue or by granulation tissue, these obstructions must be thoroughly removed by the curette, under cocain anesthesia. In the case of granulation tissue the base from which it grows must be scraped and cauterized with chromic acid.

If the bony wall of the tympanum or the ossicles are found to be carious, the carious tissue must be removed to secure healing and to prevent recurrence. It is advisable in contemplated removal of the ossicles to consider the functional ability of the ear, where the hearing is nearly normal.

Occasionally it is well, in such cases, to hold one's hand providing drainage is good and the patient can be kept under observation at longer or shorter intervals. Nature here sometimes brings about remarkable cures from the standpoint of the conservation of the hearing. But where the hearing is much reduced and always where symptoms of retention are occasionally present, it is invariably the better practice to remove the carious ossicles, after a preliminary period of non-surgical treatment has proven ineffectual, thus securing adequate drainage from the attic and insuring against recurrence of the suppuration.

While many cases are cured by the removal of carious bone or ossicles, there are a few cases in which the seat of

the disease is so deeply situated, *e. g.*, in the antrum, that the measures recounted merely ameliorate the condition and fail to cure. In these and also following removal of the ossicles, the writer has derived much benefit from the use of the canula devised by himself for syringing out the mastoid antrum. It consists of a Hartmann's canula whose distal end is prolonged first upward and then backward, so that the aperture points directly toward the aditus ad antrum when the canula has been introduced into the tympanic attic. The vertical distal portion measures about one-third of an inch in height. It serves not only for syringing out the antrum but also for introducing liquid remedies and powders. It is sometimes difficult to empty the antrum of liquid after syringing; the writer has succeeded in overcoming this feature by carrying a narrow strip of gauze or cotton up into the aditus and then by inclining the head forward siphonage completely empties the cavity so that the cotton introduced afterward comes away perfectly dry.

In those very rare cases in which the measures detailed above fail to induce a cure, the writer recommends the use of his antrotome to make a counter opening into the antrum, through which opening syringing, the application of medicaments and, in a limited degree, curettage can be instituted. The writer has modified his technique in the use of this instrument in that he now lifts out the membranous canal before applying the instrument, instead of, as formerly, slitting the posterior membranous canal wall to introduce it into the tympanum. Burnett thinks that this instrument, while very ingenious, might endanger the lateral sinus in certain cases, but as the cases in which the lateral sinus lies so far anteriorly as to be in danger are very rare and as the drill hugs the posterior canal wall extremely close and is only 3 mm. in width, this danger would seem to be very small. If the drill did extremely rarely wound the sinus it would do more than the chisel or spoon does in the radical operation now so popular for the cure of the same condition.

The writer does not feel any great enthusiasm over the so-called "radical operation," especially since reading Stetter's article reporting a number of recurrences or failures to cure in cases operated upon at Halle and else-

where. Carious or necrotic tissue should be removed wherever situated but with as little disturbance of healthy parts as is consistent with the attainment of the object sought.

In the above description of the treatment of chronic suppuration of the middle ear only the broad general principles have been indicated. Purposely, because every case must be a law unto itself beyond these generalities. The procedures described above, or similar ones, must be undertaken in every case where called for, while the particular plan of treatment pursued outside of these is a matter of individual preference or personal idiosyncrasy on the part of both physician and patient. Some cases will respond nicely to the dry treatment by means of boric acid powder, aristol, iodoform or Haug's naphtholated gauze, etc.; others do better under the use of solutions of nitrate of silver; others, under alcoholic instillations, either pure or combined with boric acid, salicylic acid and glycerine; sulphate of zinc solutions act well in some cases and so on and on.

To describe which particular remedy is indicated in each particular case would take more time than we have at our disposal to-night and warrants study by itself.

ABSTRACTS FROM CURRENT OTOLOGICAL, RHINOLOGICAL AND LARYNGOLOGICAL LITERATURE.

I.—EAR.

Otorrhoea For Three Years—Fracture of the Base of the Skull—Operation—Recovery.

1. ASTIER. (*Rev. hebdom, de Laryngologie, d'Otologie et de Rhinologie*, No. 45 Nov. 5, 1898.) Read before the French Society of Laryngology May, 1898.

A man of 57 came to the office of the author with paralysis of right half of his face, and of the entire right side. It was stated by the house physician that the patient had fallen down a stairway. He was suffering for three years from otorrhea. After much guessing about the different possibilities the mastoid process was opened and the skull trephined. A fracture was discovered, but no abscess of the brain. The patient recovered completely, and his otorrhea was cured. *Holinger.*

A Case of Mastoiditis.

2. BULSON, A. E. (*Journ. Amer. Med. Assn.*, Jan. 7, 1899.) The interesting features of the case reported are as follows: The development of a well-marked sinus phlebitis, with probable thrombosis, after apparent recovery from abscess of the mastoid antrum which had been thoroughly evacuated; the disappearance of the phlebitis and probable thrombus without the development of other pyemic manifestations; the development of an epidural abscess somewhat remote from the site of the carious process.

The importance of thoroughness in mastoid operations is urged, the operation including not only a free opening of the mastoid antrum and obliteration of its pneumatic structure, but careful search for and removal of small areas of diseased or carious bone. *Scheppegrell.*

Some of the Special Germs in Inflammation of the Middle Ear, with an Interesting Case.

3. CHEATHAM, W. (*Medical Record*, Oct. 1, 1898.) Of 102 cases investigated by Milligan, eight were tuberculous. Zaufel and others state that in acute otitis media due to cold and catarrhal extension from the nasopharynx, the pneumo-bacillus of Friedlaender and the diplococcus of Fraenkel play an important part. The characteristics of the bacillus of Friedlaender are as follows (W. C. Parkes in *British Medical Journal*):

1. Non-motility. 2. Polymorphism. 3. Decoloration when stained by Gram's method. 4. The presence of a well-developed capsule, especially when taken from the heart blood of the inoculated mice after death.

The cultural characters are as follows: 1. Whitish semitranslucent, sticky growth in bouillon. 2. Aerobic and anaerobic growth in gelatin, causing no liquefaction. 3. Whitish, moist, raised growth on slanted gelatin, the growth sliping to the bottom of the tube after four or five days. 4. Abundant gas production in glucose-gelatin stroke cultivation. 5. Slimy and almost transparent growth on agar and blood serum. 6. Formation of acid in dilute lactose bouillon. 7. Coagulation of milk when an acid reaction (in four cases before the ninth day, in one case on the eleventh day.) 8. Brownish abundant growth on potato.

In a case of acute suppuration of both middle ears, an examination showed the presence of a pure culture of the diplococcus of Weichselbaum. *Scheppegrell.*

Some Relations Between Hearing and the Word Spoken.

4. CHERVIN. (*Rev. Hebdom. de Laryngol., d'Otol., et de Rhinol.*, No. 42, Oct. 15.) The author speaks about an anomaly which he discovered not very exceptionally amongst children; especially girls, and a few adults. They cannot distinguish between some consonants, for example t and k, s and ch or our j. The author thinks this is a hereditary imperfection, which must be overcome by education. In a case he cites the mother of the child made the same mistake—no wonder the child did.

Holinger.

A Study of Thirty Cases of Antral Empyema.

5. COBB, F. C. (*Boston Med. and Surg. Journal*, Dec. 1, 1898.) In the first case reported, a rubber had been introduced into the antrum through a dental cavity and set up the inflammatory process. In the second case, it proved to be due to a foreign body which rested between the alveolar process and the antrum and was found to be a twelve-year molar.

Seven cases were due to acute catarrhal conditions and were characterized by severe rhinitis, followed by a discharge of muco-pus from one side only. Of the total number of cases cited, four were undoubtedly syphilitic and yielded to antisyphilitic treatment. In one case only was there evidence of malignancy. Ethmoidal disease was associated with antral suppuration in seven cases.

Scheppegrell.

Chronic Suppurative Otitis Media in a Tubercular Patient—Brain Abscess—Trephining Through the Mastoid.

6. COVILLE ET LOMAARD. (*Annales des Malad. de l'Oreille, du Lar., du Nez et du Phar.*, No. 11, Nov. 1898.) Man of 28 was suffering from an old otitis media, and tuberculosis. A mastoid operation became necessary. Three days after the first operation a cerebellar abscess was evacuated the presence of which was not suspected before the operation. The patient made a comparatively good recovery but died twenty days after with symptoms of weakness and of consumption. *Holinger.*

Purulent Thrombosis of the Lateral Sinus. Epidural Abscess Extensive Subperiosteal Abscess With Oedema of the Scalp, Face and Neck—Operation—Recovery.

7. DUNN, Richmond. (*Archives of Otology*, Vol. XXVII, No. 6.) A young man, aged 17, with a history of scarlet fever and repeated attacks of right middle ear inflammation. The whole scalp was very sensitive to touch and general edema extended from nape of neck to eyebrows. This edema was greatest in amount, over the occipital region and on the right side. There were irregular chills, high fevers, profuse sweats followed by temperature sinking to normal. Occasionally the right ear discharged fetid pus.

The neck was swollen in front and particularly on the right side as far down as the clavicle.

The right mastoid antrum was opened and fetid pus found, curetting backward an epidural abscess was found. The lumen of the sinus was filled with clot which was cleared out toward the bulb and then posteriorly till a free flow of blood was obtained. Subsequently a large collection of pus formed beneath the scalp in the occipital region. Incisions were made and the parts drained.

Paralysis of the right external rectus was present for a time, then disappeared. *Campbell.*

Purulent Mastoiditis Complicated by Epidural, Subpetrous and Post-Oesophageal Abscesses; Death Presumably From Internal Hemorrhage.

8. DUNN, RICHMOND. (*Archives of Otology*, Vol. XXVII, No. 6.) A man, aged 38, for five weeks had suffered from severe pain in the left ear. At no time had there been any discharge. On account of swelling of adjacent tissues the m. t. could not be clearly seen. There was swelling over the mastoid and partial left facial paralysis. The mastoid was opened and practically the whole process was infiltrated with pus and granulations.

For 10 days the patient did well but complained of insomnia and some stiffness in the left side of the neck. A swelling now appeared about the upper end of the sternomastoid. Thinking that an abscess had formed an incision was made but no pus found. The skin was now reflected from the post-mastoid region and the sinus exposed. An epidural abscess containing about one drachm of greenish pus was opened. This abscess lay between the sinus and the inner table of the skull following the lateral along its course about half of an inch and the sigmoid for about the same distance.

Patient has continued to complain for a number of days of great pain when attempting to swallow. He refers the pain to the back of the larynx. Examination of pharnyx and larynx was impossible on account of patient's inability to open his mouth. Examination of external ear canal shows its lumen very small and the upper wall extremely sensitive to the slightest pressure. Patient stated that he had drawn from his nose into his throat a lot of badly-

tasting matter and this suggested the possibility of pus in the middle ear escaping by way of the eustachian tube.

Under chloroform the operation wound was again examined; while probing in the upper posterior angle of the auditory canal an abscess was opened from which considerable pus escaped. While under the anæsthetic patient coughed up a considerable amount of pus. The pain in swallowing persists and he experiences great pain when the neck is moved. The swelling under the sterno-mastoid has increased. In making pressure over the swelling in the neck a great quantity of pus was seen to flow from the mastoid antrum. This abscess being opened, was found to be situated below the inferior face of the petrous portion, around the styloid process and foramen. Two weeks later the abscess in the neck burst into the œsophagus and much pus was expectorated. The discharge diminished greatly but the patient did not regain his strength, before death he passed by the bowel much clotted blood probably as a result of rupture of a vein into the post-œsophageal abscess. No autopsy was made. The mistake was made in not recognizing at first a case of Bezold's mastoiditis.

Campbell.

Otitis Media With Triple Personality.

9. ERWIN, A. J. (*Journ. Amer. Med. Assn.*, Jan. 7, 1899.) The otitis media presented no unusual characteristics. The three personalities which were entirely separate and distinct, each with its own facial expression, language and style, are of much interest and are important from a psychologic standpoint. *Scheppegrell.*

The Value of Ophthalmoscopic Examination for Diagnosis of Endo-Cranial Complications of Otitis.

10. GRADENIGO. (*Annales des Malad, de l'orlelle du Larnyx, du Nez et du Phar.*, No. 12, Dec., 1898.) In half of the cases we find lesions of the papilla. Only exceptionally we find papillitis in mastoiditis without endocranial complication. In extradural abscesses around the sinus the papillitis may be the only symptom. It is advisable to examine each patient for this symptom. The papillitis does not give any indication of the location of the abscess. The recovery of the papilla after operation may

be regarded as indication of complete result of the operation. *Holinger.*

Noise as a Factor in the Causation of Disease.

11. HASTINGS, ROBT. W. (*Journ. Amer. Med. Assn.*, Dec. 24, 1898.) The author refers to the effect of noise on the ear itself, its effect on existing diseases, its power to originate disease, and its effect on the health of the community. No excitement is more frequent, none more persistent than noise in neurasthenia. In illness it not only prevents sleep, which is an important factor in the therapeusis of disease, but also produces irritation upon the nerve centers. It is a factor in the causation of certain ear diseases; in the course of many acute and systemic diseases, and in many nervous diseases, chiefly neurasthenia. *Scheppegrell.*

A Case of Inflammation of the Membrana Tympani Apparently Due to Dental Pulpitis.

12. JAKINS, PERCY. (*Journ. of Laryngology, Rhinology and Otology*, Nov. 1898.) The patient, a girl of the age of 10, was suffering from acute myringitis, which the writer felt was due to a disease of the two upper central incisors. Both nerve canals were drilled and a quantity of decomposing matter was evacuated and the inflammatory condition of the membrane speedily disappeared. *Loeb.*

Tumor of the Entrance of the External Ear.

13. LANNOIS. (*Rev. Hebdom. de Laryngol, d'Otol. et de Rhinol.*, No. 42, Oct. 15. Read before the French Laryngol. Soc. May, 1898.) A woman of 75 was suffering from this tumor for 12 years. The tumor had grown rapidly during the last 6 months before death. It proved to be an adeno-epithelioma, of very mild malignity. The case is published as unique. *Holinger.*

Surgical Treatment of Some Facial Paralysis of Otitic Origin.

14. MOURE AND LIARAS. (*Rev. Hebdom. de Laryngol. d'Otol. et de Rhinol.*, No. 51, Dec. 17, 1898.) The authors sum up their careful work in the following conclusions: Facial paralysis in old otorrhoea may be due to compression by granulations or sequestra. The compression is

difficult to locate. The fact that there is electric reaction of degeneration does not prove that we should not operate, the nerve may even then recover. It is sufficient to remove all diseased tissue along the fallopian canal, especially above the oval window, and in the attic. *Holinger.*

Tuberculosis of the Middle Ear.

15. OPPENHEIMER, S. (*Medical Review of Reviews*, Nov., 1898.) The tubercle bacilli may be conveyed to the ear through the eustachian tube by the blood vessels and lymphatic system, and from the external auditory canal through a perforation of the membrana tympani. In practically all cases of tubercular infection of the tympanic cavities, contagion is conveyed to the part by way of the eustachian tube.

The morbid changes after infection may be either acute or chronic, the latter being more frequent. The symptoms vary with the progress of the disease and the amount of destruction present. The first indication is frequently the sudden appearance of pus in the external auditory canal, without any evidence of the disease being present previously. Examination shows the tubercle bacilli in the pus.

Enlargement of the periauricular glands, due to the tubercular infection, is sometimes the first symptom present. The nodules in the middle ear are about the size of a mustard seed, scattered irregularly over the entire mucous membrane. When touched with a probe they are found to be hard and resistant. The tubercular process may remain latent in the aural cavity for a considerable time without apparently causing serious trouble, but extension of the disease usually occurs sooner or later and pressages a fatal termination. An early diagnosis is important and offers a chance for the removal of the diseased area in a limited number of cases. General remedies are important.

Scheppegrell.

Tone Sensation with Reference to the Function of the Cochlea.

16. RUTHERFORD, WM. (*Lancet*, Aug. 13, 1898.) Our auditory sense excels all others in the power of distinguishing different qualities of sensation. It can distinguish tones varying in pitch from 16 to 20 vibrations to 40,000 or

even 60,000 per second. A good violinist can detect about 50 differences of pitch within the range of a semitone, implying that he can feel a difference due to half a vibration. But in some highly trained ears the sensitiveness is even greater, so that difference of pitch due to a quarter or even one-sixth of a vibration can be felt throughout the ordinary scale (Luft). How are we enabled to appreciate differences of pitch? As we all know, Helmholtz supposed that the same nerve cell cannot give us two different sensations even of the pitch of tone and therefore a separate nerve-fibre and cell must be impressed to enable us to hear tones differing by, it may be, only the fraction of a vibration. This was his extension of doctrine of specified activities to explain the different qualities of tone sensation. To render his theory feasible he supposed that the cochlea must contain an immense number of minute resonators capable of severally responding by sympathetic vibration to all the tones we can hear. Each cochlear resonator was supposed to stimulate its own special nerve-fibre and this in turn its own cell in the brain. When he advanced that theory in 1862, the structure of Corti's organ was so imperfectly understood that Corti's pillars were supposed to be the nerve terminals. They increase very slightly in length from base to apex of cochlea (from 0.06 mm. at the base to 0.1 mm. at the apex), yet Helmholtz deemed that small difference sufficient for his theory. But when it was ascertained that no pillars of Corti occur in the bird's cochlea, and that in the mammal they are mere supporting structures apparently unconnected with nerves, the theory of their function as resonators had to be abandoned.

But the resonance theory was not allowed to drop. Hensen came to its support with a new suggestion. He showed that the fibres of the basillar membrane increase slightly in length from base to apex of cochlea and that they may play the part of resonators for tones of widely different pitch, although the shortest fibres are only about $\frac{1}{5}$ mm. and the longest about $\frac{1}{3}$ in length. But the fibres are so heavily damped by layers of cells cemented to them on both surfaces of the membrane and along their whole length that they are ill-adapted for resonance. Hensen thought that the basillar fibres run parallel with each other and that they lie in a single layerlike piano strings;

but in the bird's cochlea there are two layers of fibres and irregular fibres running between them. It is impossible that systems of fibres so arranged can severally act as resonators. A nightingale would scarcely be able to learn its songs if it had to rely on the individual vibration of basillar fibres to enable it to appreciate tones of different pitch. But another argument seems cogent against Hensen's theory. If Corti's membrane had consisted of a single layer of tense parallel fibres, each cemented to the hairs of a series of Corti's cells and varying much in length throughout the cochlea, Helmholtz and Hensen would not have been so unreasonable in ascribing stimulation of Corti's cells to a segmented vibration of the superjacent fibres. But the sound waves first encounter the comparatively lax membrane of Corti and after affecting the hair cells reach the heavily damped subjacent basillar membrane, which is surely in a most unfavorable position for sound analysis.

In Ziehen's "Physiological Psychology" Corti's membrane is substituted for the basillar membrane in alluding to Hensen's theory. No one has ever ascribed a power of sympathetic response to the fibrils of Corti's membrane. It is not a tense membrane; its fibrils are in laminæ and in the bird it is semi-gelatinous. Nor has anyone ascribed to the short rod-like hairs of Corti's cells the power of selective and sympathetic vibration. They are, according to the writer, the mere transmitters of all vibrations, whether simple or complex, to Corti's cells. Therefore, the minute structure of the cochlea places insuperable difficulties in the way of Helmholtz and Hensen's theory and very likely if Helmholtz had known the structure of the cochlea in mammals, but more especially in birds, as described by Retzius, the resonance theory would never have been proposed.

But there is a physical defect in the theory of Helmholtz which he entirely overlooked; for example, if we sound three tuning forks, giving the notes of a common chord—say C, E, G—each fork produces a simple tone due to a series of simple vibrations. The three sets of vibrations are compounded and enter the cochlea as a compound vibration. But although we have the compound sensation of a harmony we can discriminate its three constituent tones. Helmholtz inferred that the cochlea must analyze the com-

pound vibration and that three sets of terminals and at least three different sensory cells in the brain must be affected. Harmony, however, depends on the relative frequencies of vibrations. It is strictly determined by the mathematical ratios of numbers. In the common chord of C, E, G, the numbers are 264, 330, 396 vibrations per second. Helmholtz never supposed it possible for the cochlear resonators to send these or any such numbers of impulses along their respective nerve fibres. He abandoned the mathematical cause of harmony at the cochlea and imagined that it could be accounted for by the specific activities of cells in the auditory centre. When he published his book on "Tone Sensations" in 1862 he could not have been impressed by a passage in Fechner's "Psycho-physics," published two years previously (1860), containing these significant words: "The first, the fundamental hypothesis is that the activities in our nervous system on which the sensations of light and sound functionally depend are—no less than the light and sound themselves—to be regarded as dependent on vibratory movements."

Helmholtz, in his book on "Sensations of Tone," gives no evidence that he ever sought to determine how many impulses per second can be transmitted along a nerve; on the contrary, he shows quite clearly that he dismissed the subject without experiment. This statement may be verified by examining page 253 of the third edition of his work translated by Ellis and published in 1875. Yet eight years before that edition appeared, his own assistant, Bernstein, had made his researches on the nerve impulse by means of his differential rheotome and had ascertained that the electrical change which accompanies the transmission of a nerve impulse lasts only 1/1400th of a second (0.0007 second) even when the nerve is powerfully stimulated. Therefore, even when tested in this manner, 1400 perfectly discrete impulses can be transmitted per second in a frog's sciatic nerve. But Bernstein's method of experiment, though highly ingenious, is far too crude to inform us of the limit to the frequency of the impulses that a nerve is capable of transmitting. The question is, if a nerve can transmit, say, 1400 perfectly discrete impulses per second, is there any reason why it should be supposed incapable of transmitting 14,000 or even 40,000 per second to produce

the highest audible tones? It may be imagined that if Bernstein had made his experiments before Helmholtz published the first edition of his book he could not have abandoned the mathematical cause of harmony at the cochlea, but must have believed that the vibrations produced by the several tones of a chord are continued into the brain. The writer believes he would have adopted this view of the matter even though he adhered to his theory of cochlear analysis.

Eighteen years ago (1880), while thinking over the great difficulties that beset the resonance theory, it occurred to the writer that the telephone might by analogy help observers to understand better the action of the cochlea. The telephone transforms sound vibrations, however complex, into electrical currents of corresponding frequency, amplitude, and wave forms and these in turn are re-transformed into sound vibrations similar to those received. The theory of hearing which he was led to propose is that there may be no analysis of sound in the cochlea; that all the hair cells may be affected by every sound, simple or complex, and through them the sound waves translated into nerve vibrations of corresponding frequency, amplitude and wave form; that in the sensorium the nerve vibrations give rise to sensations varying in quality with that of the incoming impulses. This theory has been termed the telephone theory of hearing, and no doubt it is a convenient term to distinguish it from the resonance theory though it should be understood that the proposer never regarded the hair cells as transforming the mechanical vibrations of sound into an entirely different mode of motion analogous to electricity. The essential point in the theory is simply this, that there is no analysis of sound waves in the cochlea. Theoretically a single hair cell, nerve fibre, and sensory cell should suffice to give us all the different sound sensations; but probably the great number of auditory terminals and sensory cells renders one far better able to feel slight differences in the quality of sounds. This theory of tone sensation has the advantage of carrying the physical cause of harmony onto the auditory centre, and the validity of the argument advanced in 1886 was afterwards proved by Hermann by experiments on the production of differential tones. When two discordant tones are simultane-

ously produced a beat is heard, and if the vibrational differences between the two primary tones be sufficiently great the successive beats give rise to the sensation of a third tone whose pitch is the vibrational difference between the two primary tones; for example, if the primary tones have respectively 880 and 1056 simple vibrations—namely, notes A^1 and C^2—the pitch of the beat tone is 176 simple vibrations—namely, the note F.

Hermann produced the two primary tones from two tuning-forks, with a third fork at rest, but capable of consonating to the beat-note if it had been produced objectively, but the third fork remained unaffected, although the observer heard the beat tone loudly. He therefore concluded that if the beat-tone failed to excite a reasonator outside the ear it could not affect any supposed reasonator in the cochlea; consequently it must be a purely subjective phenomenon arising from the conflict of vibrations in an auditory centre. That experiment, which has been fully confirmed, proves that the auditory nerve transmits to the sensorium vibrations of the same frequency as the sound waves and that they produce in the auditory centre harmony or discord, according to their relative numbers. Hermann's conclusion from these experiments is "that there is no alternative but to drop the Helmholtz hypothesis of resonators in the ear, although so elegant."

Although the telephone theory of the action of the cochlea enables us to understand the production of sensations of harmony and discord it still leaves much that is in the highest degree obscure. The discrimination of pitch is a great difficulty. We all know that it varies greatly in different persons. Those who have little or no ear for music have been found unable to observe any difference of pitch between C and E of the scale, although there is an interval of 66 vibrations between them. On the other hand, a musician with an extremely good ear may by practice become so sensitive to pitch that he can detect a difference due to one-fifth of a vibration even when the vibrational frequency is 1000 per second. That fact is all the more remarkable, because when the vibrational frequency rises above 500 per second the individual vibrations cannot be detected, although a change in the sensation can readily be felt. The accurate and refined appreciation of pitch

seems therefore to imply an exceptionally perfect molecular state in the cells of the auditory centre; but how it is that the consciousness is so sensitive to changes in vibrational frequency when the individual vibrations are no longer perceptible must remain a mystery.

The writer considers that he was justified in arguing 12 years ago that our sensations of harmony and discord cannot be reasonably explained unless we believe that the auditory nerve transmits to the brain impulses of the same frequency as the sound vibrations. The proof of that has since been furnished by the experiments of Hermann on the differential tones already referred to. But it by no means follows that the theory of cochlear analysis is thereby disproved; on the contrary, it merely compels the upholders of the Helmholtz theory to admit that if certain cochlear terminals are affected by vibrations of a certain frequency they must transmit to the brain impulses of the same frequency as the sound vibrations. Although the validity of the argument on this point be granted it still remains an open question whether certain auditory terminals are impressed by tones of a certain pitch or whether they are all impressed by audible tones of every pitch. If the observations made by Gruber, but especially those by Stepanow, are reliable and free from fallacy we should be obliged to conclude that the loss of the apical half or so of the cochlea does not involve deafness to tones of low pitch. The results of their observations are therefore hostile to the resonance theory and favorable to the telephone theory. On the other hand, the two cases observed by Bezold and that by Moos and Steinbrugge show that deafness to tones of a high pitch may be associated with nerve atrophy in the basal turn of the cochlea. It is very difficult to look upon that association as a mere coincidence and apparently more reasonable to regard the basal portion of the cochlea as necessary for the appreciation of tones of high pitch. But if a corresponding relation cannot be shown between the apical portion of the cochlea and tones of low pitch the upholders of the resonance theory must feel that they are supported by only one of the two legs that are necessary in this case.

But if it appears impossible to harmonize the resonance theory of the cochlea with anatomical structure and with

certain pathological observations how does it stand with the telephone theory? If it be true, as Gruber and Stepanow would have us believe, that the basal turn of the cochlea can enable us to hear all tones, notwithstanding destruction of the apical half, it seems reasonable to expect that the apical portion should still enable us to hear all tones, notwithstanding nerve atrophy in the basil portion. Bezold's cases, however, appear to show that the basal portion is necessary for the appreciation of high tones. We are therefore landed in the dilemma that pathological observations on the apical portion of the human cochlea are opposed to the resonance theory and favorable to the telephone theory, while those of the basal portion favor the resonance and oppose the telephone theory. In Bezold's second case only about two octaves of audible tones remained in the middle register; the loss of high tones was ascribed to nerve atrophy, but no cause could be assigned for the loss of low notes. On the telephone theory one is compelled to ask why there should have been deafness to many low and so many high tones, although nerve fibres enough remained to enable the patient to hear two octaves of the middle tones. If evidence of high tension in the labyrinth had been recorded in that case an explanation could have been found on the lines of Bernett's experiments, but in absence of that evidence the writer is bound to say that he does not at present see how that case is to be explained on the telephone theory.

Whatever be the true theory it is important to note that tone defects are far less common at the lower than at the upper end of the scale and that in the middle of it they are exceedingly rare. Politzer states that in cases of aparrent tone defects in the middle register the use of resonators generally shows that there is only diminished sensitiveness instead of total deafness to the particular note. At first thought one might be inclined to regard gaps in the scale as evidence in favor of the theory that each auditory fibre is concerned in the sensation of a particular tone, but in the well-known case reported by Magnus, where the tones F, F sharp, G, G sharp, A sharp and B were inaudible, ankylosis of the stapes and calcification of the orbicular ligament were found after death and assigned as the cause. *Loeb.*

Entotic Sound Perception.

17. SOMERS, L. S. *(Medicine*, Dec., 1898.*)* Entotic sound perception which is due to causes in the ear itself refers to sounds, such as the pulse-beats in the surrounding arteries and the rushing sound of the blood, the latter being especially strong when there is increased resonance of the ear, as in closure of the meatus or tympanum, or when fluid accumulates in the tympanic cavity, during increased cardiac action, or in hyperesthesia of the auditory nerve. Of the various causes, anemia and hyperemia are first enumerated. Local treatment is important, but constitutional measures are frequently equally so. Each case should be treated according to its indications.

Scheppegrell.

Treatment of the Ears in Whooping Cough.

18. STEPHENS, G. A. *(Jour. Amer. Med. Assn.*, Jan. 7, 1899.*)* The author claims that paroxysms of coughing diminished or ceased after treating the ears, which often in this disease have a serous or purulent secretion, or are merely sensitive to pressure. After washing the ear morning and night with warm boricated water, he paints the external passage with the following:

Cocain hydrochlorate - - -	1.25 gm.,
Glycerin - - - - - - -	16 gm.,
Van Swieten's solution - - -	20 drops,
Aq. dest. - - - - - - -	15 gm.

Scheppegrell.

A Contribution to the Clinical Stages and to the Technique of the Operation for Sinus Thrombosis.

19. WHITING, New York. *(Archives of Otology*, Vol. XXVII, No. 6.*)* The author deals with,

1. The Clinical Stages of Sinus Thrombosis.

2. The Technique of the operation for the relief of the same.

The course of sigmoid sinus thrombosis may be conveniently designated for the purposes of clinical classification as comprising three stages, characterized by local and systemic manifestions; the anatomical appearances of the sinus wall, the pathological changes in the clot and the signs of circulatory obstruction may be denominated as

local factors; while rapid and excessive fluctuations of temperature frequently repeated rigors, peripheral or centrel metastases, etc., embrace the essential systemic symptoms.

The clinical stages are designated:

FIRST STAGE: The presence of a thrombus, parietal or complete (chiefly composed of fibrin, red blood cells, exfoliated endothelium, leucocytes and homogeneous protoplasmic cells) not having undergone disintegration and accompanied by slight or moderate pyrexia, rigors being usually insignificant or absent.

SECOND STAGE: The presence of a thrombus, parietal or complete, which has undergone disintegration with resulting systemic absorption, characterized by frequent rigors and pronounced septico-pyemic fluctuations of temperature.

THIRD STAGE: The presence of a thrombus, parietal or complete, which has undergone disintegration with systemic absorption, accompanied by rigors, rapid and great fluctuations of temperature, and central or peripheral embolic metastases terminating usually in septic pneumonia, enteritis or meningitis.

The diagnosis of sinus thrombosis in the first stage is seldom made preliminary to the operation for mastoiditis and its detection follows, as a rule, the recognition of extension of carious disease, through the inner table along the course of the sigmoid groove.

The only safeguard against encountering the increased gravity of the second stage is to operate immediately upon the recognition of the first stage. The transitional period between these two stages is usually brief, and its completion is commonly heralded by a sharp rigor.

THE TECHNIQUE OF OPERATION UPON THE SIGMOID SINUS.

The usual curvilinear mastoid incision is made extending from one inch below its lip to a point one-half inch above the temporal ridge. A second incision is made beginning at the centre of the first and extending backward two inches or more toward the occipital protuberance.

The mastoid antrum and pneumatic spaces are opened and along its posterior border the bulging convexity of the sigmoid groove is seen. The sigmoid groove may be

quickly opened with curette or broad-beaked rongeur but under no circumstances must a chisel be employed.

The most accessible part of the sigmoid groove for opening is the knee and descending portion. The knee lies at about the level of the supra-meatal spine and usually ½ to ⅔ of an inch posterior to it. When the groove has been opened further exposure of the sinus is most readily accomplished with the rongeur.

When evisceration of the thrombus is complete the bleeding is best controlled by pressing a wad of closely folded gauze *upon* the distal extremity of the opening in the vessel. Bleeding from the jugular bulb is controlled by packing gauze *into* it. The removal of the gauze 2 or 3 days later is never followed by hemorrhage of any significance.

The shock attendant on the more serious of these operative procedures is frequently very pronounced. Intravenous injection through the median basilic vein of 16 to 24 ounces of normal salt solution at a temperature of 105° to 108° F. or an injection into the bowel of this salt solution at a temperature 110° to 115° F. should be employed.

At the moment of opening the sinus wall, the foot of the operating table should be elevated; *firstly*, because the blood pressure in the sinuses of the dura mater is measurably increased and the likelihood of admission of air to the open vein reduced to a minimum; *secondly*, in order to maintain the equilibrium of the general intracranial fluids, which might be seriously disturbed by suddenly induced anemia of the brain, consequent upon the very copious bleeding of the sinus operation. *Campbell.*

II.—NOSE AND NASO-PHARYNX.

Remarks on Nasal Synechias.

20. COLLINET. (*Rev. Hobdom. de Laryngol, d'Otol et de Rhinol.* No. 49, Dec. 3, 1898.) The etiology of this affection is more complicated than appears at first sight. Besides the usual point after galvanocautery operations the author mentions congenital synechias, synechias after diphtheria, scarlet fever, and measles, chronic and acute rhinitis, especially in lymphatic individuals, etc. The author describes an instrument to

dissect synechias. It consists of two parallel knives, the distance of which may be regulated with certain screw or wedge devices. Several layers of gauze in the opening are advised for after treatment. They have to be changed every day. *Holinger.*

Endothelial Sarcoma or Anglo-sarcoma of the Middle Turbinated Body.

21. DELLE. (*Rev. Hedom. de Laryngol. d'Otol. et de Rhinol.* No. 10, Dec. 10, 1898.) A case of sarcoma of the middle turbinated body is reported. It had progressed through the ethmoidal cells, and the base of the skull, producing meningitis. The patient died without treatment. *Holinger.*

Maxilliary Pneumosinus of Cystic Origin.

22. CAEN, FREMONT. (*Rev. Hebdom. de Laryngol. d'Otol. et de Rhinol.*, No. 45, Nov. 5, 1898.) This term was introduced by Lermoyez. A man of 42 had at different times a most serious toothache connected with much swelling of the cheek, which disappeared after a few days. These attacks recurred. A doctor incised the tumor during an attack and it collapsed letting some air escape. It filled up as soon as the incision closed. The two first molars were incompletely extracted long before, leaving stumps of the roots. These were extracted by the author and the alveoli drained into the sinus. A complete cure followed.

Holinger.

Interstitial Electrolysis with Copper Electrodes in Ozena.

23. GOUGUENHEIN ET LOMBARD. (*Annales des Malad. de l'Oreille Larynx du Nez et du Phar.*, No 11, Nov. 1898.) The conclusions of the authors are quite encouraging. Interstitial electrolysis witb copper electrodes has a certain influence on ozena and its manifestations. The bad odor disappears. How it acts, it is difficult to say. The formation of oxychloride of copper and its influence are doubtful. The good results seem to persist for a long time, yet it cannot be said that they were permanent. Accidents are rare with a good technique. The dangers have been exaggerated. *Holinger.*

A Bridle for the Control of Mouth-Breathing.

24. JENKINS, N. B. *(Medical Record, Vol. LIV.)* The device is made of four strips of cotton webbing, one inch wide, and commercially known as "stay binding."

Scheppegrell.

Latent Empyema of the Accessory Cavities of the Nose.

25. GOTTLIEB KICER. *(Laryngoscope*, February, 1899.) The following observations are the result of 200 post mortems:

Empyema of the Maxillary Sinus existed in 39 cases. In nine of these the affection was bilateral. In 16 (6 bilateral) there was pus. In 13 (1 bilateral) a muco-purulent secretion was found. In 10 (2 bilateral) a sero-purulent secretion was present. In 42 post mortems one case of non-purulent secretion was found.

Empyema of the Sphenoidal Sinus existed in 29 post mortems. Seventeen of these were bilateral. In 14 (1 bilateral) pus was found; in 9 (3 bilateral) muco-purulent secretion and in 7 (2 bilateral) sero-purulent secretion was present. In 40 post mortems there was one case of non-purulent secretion found.

Empyema of the Ethmoid Cells existed in 7 post mortems. One of these was bilateral. In 4 there was pus, in 2 muco-purulent secretion and in 2 sero-purulent secretion. In 33 post mortems one case of non-purulent secretion was found.

In the 200 post mortems 105 contained the products of empyema in one or more of the accessory cavities. Thus in the maxillary sinus in 75 cases (37 per cent) in the sphenoidal sinus in 66 cases (30 per cent), in the ethmoid cells in 39 cases (19 per cent.), in the frontal sinus in 29 cases (15 per cent).

Of the 200 post mortems 59 were found with empyema in one or more of the accessory cavities, viz.: In the maxillary sinus in 19 per cent, in the sphenoid sinus in 15 per cent, in the frontal sinus in 7 per cent, and in the ethmoid cells in 3 .5 per cent.

Concomitant Empyema was found in 21 post mortems. In 7 of the 13 cases of frontal sinus empyema, pus was also found in the maxillary sinus of the corresponding side. In

two of these the frontal sinus accumulations were bilateral.

The greenish-yellow pus referred to by Killian as characteristic of empyema of the frontal sinus was seen in only three of the 13 cases; it was also found twice in the maxillary sinus and in the sphenoid sinus, and once in the ethmoid cells. This is very natural, as the coloring of the pus is due to the chromogenic bacteria.

In 11 of the post mortem examinations all of the accessory cavities contained a non-purulent secretion, and if the post mortem diagnosis were considered, the above facts might have been determined as the cause of death. A post mortem rhinoscopic inspection suggested empyema in about one-half of the subjects. The case-records indicated that not one of these cases had been diagnosticated as such. *Loeb.*

Dental Septicemia of the Antrum.

26. LATHAM, V. A. (*Jour. Amer. Med. Assn.*, Jan. 21, 1898.) A patient of eight years developed symptoms which finally suggested involvement of the antrum. One of the symptoms which led to this diagnosis was "slight crepitation"(?),which caused the author to believe that the antrum was involved. The temporary second molar was extracted and no necrosis was found, but evidences of roughened bone felt. The danger of injuring the cusps of the developing teeth is referred to. The cavity was drained of all pus and washed with a hot saline solution. The case made a good recovery.

The second case of empyema in a patient of 23 years. *Scheppegrell.*

Infection of the Frontal Sinus from the Maxillary Sinus.

27. LENHARDT, (Havre.) (*Rev. hebdom. de Laryngologie, d'Otologie et de Rhinologie*, No. 41, Oct. 8, 1898.) Read before Soc. Franc. de Lar., May, 1898. As a rule we find the suppuration of the frontal sinus with inflammation descending from the upper to the lower sinus. This avenue may be passed in the opposite direction and the author reports two cases which prove that the inflammation of the frontal sinus may rise from an inflammation

of the maxillary sinus. The proof is based on the principle *post hoc, ergo propter hoc.* *Holinger.*

A Case of Syphilitic Chancre of the Nasal Septum Resembling Pseudo-sarcoma.

28. LARMOYEZ. (*Annales des Malad. de l'Oreille du Larynx, du Nez et du Phar.*, No 12, Dec., 1898.) A very interesting case indeed. The case only became clear when a secondary roseola appeared the day before an extensive operation on the nose was intended. *Holinger.*

Automatic Curvature of a Snare with Flexible Loop used to Remove the Posterior Ends of the Turbinated Bodies.

29. MANU. (*Annales des Malad. de l'Oreille du Larynx, du Nez et du Phar.*, No, 11, Nov. 11, 1898.) The author found difficulties in removing the posterior ends of the turbinated bodies. He invented a new instrument. It is a snare with each end of the steel wire fixed for itself in a screw apparatus, which allows of twisting the wire lengthwise. By more or less twisting the one wire or the other the loop may be bent in a direction wanted.

Holinger.

Chronic Headache Caused by a Centipede in the Nose.

30. MEYJES, W. P. (*Journal of Laryngology, Rhinology and Otology*, Nov. 1898.) The headache which was confined to the right eye was combined with a slight mucopurulent secretion from the corresponding side of the nose. To lessen the hyperemia and swelling boric acid was administered, and after a heavy fit of sneezing a small insect which turned out to be a chilopod (centipede) was expelled alive. *Loeb.*

The Relation of the General Practitioner to the Rhinologist, and the Treatment of some Affections of the Nose and Nasopharynx.

31. MILBURY, F. S. (*Brooklyn Med. Journal*, Nov. 1898.) By working harmoniously, the general practitioner and the specialist may be of incalculable benefit to each other in the practice of medicine. Many affections, which on superficial examination appear to have no connection

with nasal diseases, are speedily cured by the correction of some pathologic condition of the nose. *Scheppegrell.*

A Case of Blue Secretions of the Nose (Chromo-Rhinorrhee.)

32. MOLINE. (*Hebdom Rev. de Laryngologie d'Otologie et de Rhinologie*, No. 44, Oct. 29, 1898.) A lady of 25, was treated for acute otitis media. During the treatment she became seriously ill with indefinte symptoms mostly resembling a severe attack of grippe. Three months later she complained that at times when she was blowing her nose blue masses were mixed with the usual grayish secretions of the nose. The author at different times saw these blue lumps of mucous and had an examination made by Dr. Engelhardt with a completely negative result. The author excludes hysteria for different reasons. He comes to the conclusion that in one of the accessory cavities some unknown process must have its seat. *Holinger.*

A Case of a Rare Anomaly.

33. ONODI. (*Hebdom, Rev. de Laryngol., d'Otol. et de Rhinol.*, No. 52, Dec. 24, 1898.) The anomaly which is nicely demonstrated in a drawing consists in a very large ethimoidal cell. The measurements are: height 2 cm., width 3 cm. and length 4 cm. It looks like a large frontal sinus betwfen the bony sheets of the roof of the orbit.

Holinger.

Grave Hemorrhage After Adenoid Operation in a Hemophile.

34. PLAGET, GRENOBLE. (*Hebdom, Rev. de Laryngol., d'Otol. et de Rhinol.* No. 45. Nov. 5, 1898.) Serious hemorrhages have been reported from different sources. This one teaches a new lesson because it deals with a condition which may be diagnosed beforehand. The hemorrhage which brought the patient in great danger was stopped at last with tamponade of the nose and naso-pharynx. *Holinger.*

The Prevention of Hay Fever.

35. RIXA, A. (*Journal Amer. Med. Assn.* Jan. 21, 1899.) The author advocates irrigation and sterilization of the nasal chambers in order to prevent hay fever by

rendering the parts aseptic. Two weeks before the onset of the disease, the nasal cavities and post-nasal spaces are irrigated by a harmless antiseptic solution by means of a douche and an atomizer. Hydrozone of a strength of eight to 25 per cent. is preferable. In obstinate cases, boracic acid, menthol and glyco-thymoline in a four per cent. solution of eucain is prescribed.

[Eucain, cocain and other local anesthetics are dangerous agents to place in the hands of the patient, and should never be prescribed. The abstracter has repeatedly called attention to this, and recently in an article entitled "The Abuse and Dangers of Cocain," published in the *Medical News*, Oct. 1, 1898.] *Scheppegrell.*

Headaches from Nasal Causes, with Some Illustrative.

36. THOMPSON, J. A. (*Journal American Med. Assn.*, Jan. 14, 1899.) A review of the clinical history and a description of the symptoms of headaches due to pathologic conditions in the nasal chambers. In some obscure cases, only the result of the treatment will confirm the diagnosis. The correction of the abnormal condition of the nasal chambers is indicated in the treatment of these cases.

Scheppegrell.

Clinical Study of Primary Lupus of the Septum and the Nasal Fossæ.

37. TOUSSOT. (*Hebdom. Rev. de Laryngol., d'Otol. et de Rhinol.*, No. 45., Nov. 26, 1898.) The historical introduction to this article is very short. Had he known the publications of Siebenmann, this article might have been more valuable. The author publishes eleven observations. The diagnosis of this affection is not very difficult. For differential diagnosis syphilitic ulcerations must be borne in mind. The treatment is curetting of the parts and cauterization with lactic acid or galvano-cautery.

Holinger.

III.—MOUTH; PHARYNX; DIPHTHERIA.

Remarks Concerning the Presence of the Short Bacillus of Loeffler in the Exudations of Ulcerations.

38. GLOVER, JULES. (*Rev. Hebdom. de Laryngol., d' Otol. et de Rhinol.*, No. 53, Dec. 24, 1898.) After adenoid operation

the patients often suffer from acute tonsilitis, which sometimes becomes quite grave. The short bacillus of Loeffler has often been found in the false membranes, which however could not be considered diphtheritic in the present sense of the word. *Holinger.*

Control of Diphtheria.

39. W. K. JACQUES. (*Jour. Amer. Med. Assn.*, Nov. 26, 1898.) The fear of cholera and epidemics of yellow fever has caused state officials to spend thousands of dollars in questionable methods for the protection of the people. Diphtheria, however, which is absolutely preventive has received little or no attention from these officials. The best authorities on the subject believe that if children were given the highest scientific protection there need not be a single death from Klebbs-Loeffler diphtheria. We have the knowledge and the remedy; all we lack are the individuals in official life to apply them for the protection of the public. *Scheppegrell.*

Diphtheria Complicated by Measles.

40. LA FETRA, L. E. (*Medical Record*, Oct. 8, 1898.) A girl of six years developed nasal diphtheria extending to the pharynx, which was successfully treated by the injection of 1500 units of antitoxin and local antiseptic irrigation. *Scheppegrell.*

Diagnosis and Treatment of Diphtheria.

41. IRVIN, JAS. S. (*Va. Medical Journal*, Sept. 23, 1898.) A careful review of the diagnosis and treatment, including a detailed review of the local and constitutional symptoms, differential diagnosis and bacteriology of the disease. The laboratory technique for developing and examining the bacillus is referred to and the importance of prophylaxis emphasized. *Scheppegrell.*

Diphtheria and Its Modern Treatment.

42. WALLACE, C. H. (*Medical Fortnightly*, Nov. 1, 1898.) Antitoxin should be used not only in cases in which a diagnosis of diphtheria has been made, but also in suspicious cases. *Scheppegrell.*

Spread of Throat Illness by Milk.

43. X. (*Public Health*, Oct. 1898.) During 1897 there was at Surbiton a well-marked outbreak of follicular sore throat and as a result of personal inquiry it was very soon found that milk supply was the apparent factor in distribution. A visit to the premises was made with no results, and a close inspection of the cow-sheds and of the employes was also made. A sewer was being laid in the road outside the farm, and for a limited period there was a smell to be noticed; but it was unlikely that this could have affected the milk (since it was not kept stored on the premises near the road) as to render it in any way dangerous to health. A man whose business it was to milk the cows, was examined and found to be out of health, and suffering from well-marked tonsilitis and gastrodynia, and further with suppurating whitlows on the hands. He immediately discontinued any employment with the cows and no further case occurred. There were considerably over 30 cases of illness, some very severe and probably many more.

Scheppegrell.

IV.—LARYNX.

Histological Examinations of Polypus of the Larynx.

44. BRINDEL. (*Rev. Hebdom. de Laryngol., d' Otol. et de Rhinol.*, Nos. 46 and 47, Nov. 12 and 19, 1898.) The author gives a review of the literature on this subject. His own statistics contain 33 cases.

They are:

Myxoma, 11, 33 per cent.
Papilloma, 9, 28 per cent.
Angio-myxoma, 5, 15 per cent (2 cysts).
Angio-fibro myxoma, 2 (1 cystic).
Fibro-myxoma, 2.
Fibroma, 2.
Adenoma, 1.
Chondro-fibroma, 1.
All were pseudo cysts.

In 29 cases the position of the polypus was given; 14 times the polypus was situated on the left vocal cord, 12 times on the right and twice at the anterior commissure. In

one patient a big polypus was located in Morgagni's pouch. the anterior third of the vocal cords was usually the place of origin. Out of 29 patients, 21 were men, 8 women, 7 were between 20 and 30, 10 between 30 and 40, 10 between 40 and 50, 2 between 50 and 52. Not one case was found below 20 years. The occupation of the patients had no influence. The polypi were with one exception all removed through the mouth. The microscope alone gave proof of the benign or malignant nature of the polypi. *Holinger.*

Myxoma of the Larynx.

45. CLEMENT, PARIS. (*Rev. Hebdom. de Laryngol, d'Otol. et de Rhinol.*, No. 42, Oct. 15, 1898.) Benign tumors of the larynx are met with very exceptionally. Usually they are papillomata. The author reports this case because it is a myxoma. It occurred in a tenor singer of 42. The following conclusions are taken therefrom:

1. Myxoma of the larynx was for a long time little known although the examination is easy.
2. It does not necessarily interfere with respiration.
3. The voice is changed in timbre and extent for singing.
4. It does not necessarily need to be operated upon. A good operation causes no interfernece with the function of the organ. *Holinger.*

Tuberculosis; Its Hygiene and Dietetics.

46. CUZNER, A. T. (*Journ. Amer. Med. Assn.*, Dec. 17, 1898.) The author believes that tuberculosis is a disease of malnutrition of the tissue elements of the body; that the bacillus while it has considerable work to do and has well-marked influence over the course of the disease is not the primary factor or cause. He believes if taken in the early stages, before the system has become exhausted by its inroads, it can and has been cured in numerous cases. Climate and hygiene are valuable, but the most important part in the treatment of tuberculous patients is the diet. *Scheppegrell.*

A Case of Epithelioma of the Larynx.

47. GOUGUENHEIM AND LOMBARD. (*Annales des Malad. de l'Oreille du Larynx., du Nez et du Phar.*, No. 12, Dec.,

1898.) The tumor was very moveable, and pedunculated. It was removed with the hot snare. The patient made a good recovery. *Holinger.*

A Practical Mode of Administering Iodine Hypodermatically in the Treatment of Pulmonary Tuberculosis.

48. INGRAHAM, C. W. (*Medical Record*, Oct. 1, 1898.) The formula recommended is as follows:

℞	Iodine - - - -	1/2 gr.
	Bromine - - - -	1/14 gr.
	Phosphorous - - -	1/100 gr.
	Thymol - - - -	2/3 gr.
	Menthol - - - -	2/3 gr.
	Sterilized oil - - - -	ʒi.

The commencing dose is 15 minims, while the maximum daily dose is one fluid drachm. The injections are never made oftener than once daily. *Scheppegrell.*

Treatment of Tubercular Laryngitis.

49. LEDUC. (*Annales des Malad, de l'Oreille du Largnx. du Nez et du Phar.*, No. 11, Nov. 1898.) The author demonstrated at the congress in Moscow a simple method of inhaling powders into the larynx and trachea of patients with tubercular laryngitis.

He uses:

Diiodoform 8.0.

Hydrochlorate of cocain 0.08.

2 to 6 aspirations a day. Sometimes he adds to that morphine 0.04. The laryngeal symptoms disappeared very readily. *Holinger.*

Acute Oedema of the Larynx.

50. MAGUAN. (*Rev. Hepdom. de Laryngol., d'O'tol. et de Rhinol.*, No. 52, Dec. 24, 1898.) A case of acute edema of the larynx is reported in a man of 59. After three days the symptoms disappeared after sprays and an external application of counter irritants. *Holinger.*

Sero-Diagnosis of Tuberculosis.

51. MONGOUR AND BUARD. (*Echo Med.*, Dec., 1898.) Sero-reactions were obtained in four cases of tubercular

pleurisy and nine of tuberculosis. In 21 other patients they also discovered latent phthisis by this means.

Scheppegrell.

Tracheo-Thyreotomy in Cancer of the Larynx.

52. MOURE. (*Rev. Hebdom. de Laryngol. d'Otol et de Rhinol.*, No. 43, Oct. 22, 1898.) A rather gloomy view is taken about operative interference in cancer of the larynx. The greatest number of patients die shortly after laryngectomy, and those who live are in such a condition that they would better die. The author would replace this operation by tracheo-thyreotomy. He cites two observations of epithelioma of the vocal cords with tracheo-thyreotomy, recovery during five years. But against those there are two observations with recurrences, the fourth after a second operation cured since seven months. The method of operating is then described. 1. Tracheotomy from the lower margin of the cricoid cartillage downwards. A Trendelenburg canua is introduced. Next is splitting of the larynx from the lower margin of the hyoid to the upper of the cricoid. All within the same incision of the skin, which reaches from above the hyoid to the sterum. This gives a very good access to the larynx where any tumor is easily destroyed with the thermocautery. The wound is then closed by sutures.

Holinger.

The Eversion of the Ventricles.

53. NOACK, ALEX. (*Rev. Hebdom. de Laryngol., d'Otol. et de Rhidol.*, No. 44, Oct. 29, 1898.) The author sums up the contents of his paper in these four points:

1. The spontaneous eversion of the mucous membrane of Morgagni's ventricles, which was admitted by certain authors, is not possible on account of the fixation of this membrane to the underlying structures.

2. The acute inflammation of the mucous membrane of the lower parts of the ventricular bands may look like an eversion.

3. The so-called eversion is due to the presence of a tumor which originates in or on the mucous membrane. The inflammation connected with this tumor must come into consideration.

4. To verify the diagnosis the histologic examination of the tumor must be made, as Dr. Moure shows.

Holinger.

A Case of Laryngeal Cancer.

54. ORR, C. J. (*Medical Review*, Dec. 3, 1898.) A man of 53 years, otherwise robust, complained of hoarseness and some slight dyspnœa. The dyspnœa became so aggravated that a tracheotomy was performed. About 20 days later the patient died from asphyxia, due to obstruction of the trachæ by a clot of bloody mucus. The unusual symptom in this case was the very small degree of pain present.

Scheppegrell.

Treatment of Tuberculosis.

55. PORTER, W. (*Medical Review*, Dec. 3, 1898.) A valuable contribution to the therapeusis and therapeutic indication of tuberculosis. *Scheppegrell.*

Consumption: Cases that Should Go to Colorado and Cases that Should Stay at Home.

56. RICHARDS, G. L. (*Trans. Fall River Med. Society*, 1898.) Suitable cases with means to live in comparative comfort are greatly benefited at Colorado, Arizona and New Mexico. Others had better remain at home and there are many places near by, such as Sharon and Princeton where patients may derive much benefit.

Scheppegrell.

Some Statistics Upon Sero-Therapy in Tuberculosis.

57. STUBBERT, J. E. (*Trans. Amer. Climatologic Assn.*, 1898.) A report of 82 cases treated by sero-therapy. Of 36 incipient cases, the bacilli disappeared in 30 per cent. and decreased in 41 per cent., and there was general improvement in over 94 per cent. Of 42 moderately advanced cases, the bacilli decreased in 30 per cent. and there was improvement in 71 per cent. In the far advanced cases, there was general improvement in 25 per cent. In cases of laryngeal tuberculosis, the ulcerations healed in 50 per cent.

The author believes that sero-therapy is more satisfactory than treatment by any one drug, but admits that we have not yet found a specific for tuberculosis.

[Compare with Dr. Weaver's article on "Specific Action of Air on Consumption," an abstract of which is published in this issue.—*Scheppegrell.*]

The Specific Action of Air in Consumption.

58. WEAVER, W. H. (*Journal Amer. Med Assn.*, Jan. 14, 1899.) The method described is as follows: The patient is directed to take as full an inspiration as possible and then close the glottis and bear down as if straining so as to increase the tension of air in the upper chest. In performing the act in this manner, the greater effort is expended in the muscles of the abdomen, and consequently the air is forced upward.

In order to increase the interest in the treatment, the nebulizer should be given the patient, and the importance of getting the antiseptic nebulizer well down into the air cells by the method described above impressed upon him. Tuberculosis of the lungs in the early stage is the most curable of any of the chronic diseases, and in the last stage the most hopeless.

A table of 56 cases shows the following results: 19 first-stage cases cured; of 28 second-stage cases, 16 were cured, 7 improved and 3 died; of 9 third-stage cases, no cures, six improved temporarily. Leaving out the hopeless third-stage cases, 80 per cent. were cured.

Scheppegrell.

V.—MISCELLANEOUS.

Notes on the Therapeutic Uses of the Suprarenal Gland.

59. BATES, W. H. (*Medical Record*, Oct. 8, 1898.) In a case of exophthalmic goitre a decided improvement followed its application. One tablet representing eight grains of the gland was taken three times daily.

Scheppegrell.

The Diagnostic Characteristics of Headaches According to Their Origin.

60. GRADLE, H. (*Journ. of American Med. Assn.*, Nov. 18, 1898.) Among nasal diseases, the forms more likely to lead to persistent and unusually severe headaches are the more intense suppurative inflammations of the sinuses, in which cases nasal symptoms can always be elicited. Nocturnal aggravations are not uncommon under these circumstances. Moderate but very persistent headache is occasionally complained of in nasal stenosis of any kind, but only by distinctly neurotic subjects.

It is less generally known that inflammatory conditions of the pharyngeal tonsil are sometimes the source of continuous headache, usually not very severe in both children and adults. *Scheppegrell.*

Odor as a Symptom of Disease.

61. MCCASSEY, J. H. (*Medical Age*, Dec. 27, 1898.) Most diseases have characteristic odors and the sense of smell should be exercised in making differential diagnoses. *Scheppegrell.*

Artificial Respiration in Relation to State Medicine.

62. MCDANIEL, E. D. (*Journ. Amer. Med. Assn.*, Dec. 3, 1898.) A plea for the scientific application of artificial respiration. *Scheppegrell.*

Schleich's General Anaesthesia Not a Success

63. RODMAN, H. (*Medical Record*, Oct. 1, 1898.) The general consensus of patients is that the Schleich mixtures are not unpleasant to inhale, but in this respect it has no advantage over chloroform. In the administration of these mixtures the reflexes are lost early, especially the conjunctival reflex, thereby depriving the anæsthetist of one of his most important safe-guards. Patients gag and vomit to almost the same extent as with ether or chloroform, which is also contrary to what has been claimed for these mixtures.

In view of these unfavorable results, the Schleich mix-

tures have been practically abandoned at the Mount Sinai Hospital, and one of its strongest advocates on their introduction into this country is thoroughly disappointed with their results. *Scheppegrell.*

Bronchial Cyst, With Report of Case Treated by the Injection Method.

64. STONER, H. H. (*Medicine*, Nov. 1898.) After cleansing with a two-per-pent. carbolic solution, an ounce of Lugol's solution was injected into the cavity of the cyst and manipulated in such a manner as to bring the solution in intimate contact with every portion. Two weeks later the tumor was reduced to a mere nodule, and fourteen months later had shown no tendency to refill.
Scheppegrell.

Anæsthetic Mixtures in General Anæsthesia, with Special Reference to the Schleich Mixtures.

65. WESTBROOK, R. W. (*Brooklyn Med. Journal*, Nov. 1898.) A conservative article on an important subject. The author believes that the Schleich mixture should be given an extended trial. The condition to be desired is a "safe anæsthetic in the hands of a safe man," and such a man will never fail to realize that anæsthesia always means a step towards death. *Scheppegrell.*

REPORT OF THE FOURTH ANNUAL MEETING OF THE AMERICAN LARYNGOLOGICAL, RHINOLOGICAL AND OTOLOGICAL SOCIETY.*

HELD AT PITTSBURG, PA., May, 1898.

BY ROBERT C. MYLES, M. D., NEW YORK CITY,

SECRETARY OF THE SOCIETY.

(Continued from Vol. vii. No. 4.)

Primary Epithelioma of the Antrum of Highmore, with Histology of a Case, and two Camera Lucida Drawings. By Wendell C. Phillips, M. D. (Abstract.)

Tumors of the superior maxillary bone have attracted the observation and taxed the skill of surgeons for many years. In the earlier years, all tumors in this region were supposed to originate in the antrum of Highmore—even those that we now know to be primarily located elsewhere. Primary sarcoma of the antrum is not so rare, and it would seem that the earlier observers did not carefully differentiate between sarcoma and epithelioma. A careful research of literature has brought to light a few authentic cases of primary epithelioma of the antrum. Short abstracts of these have been made.

Morel states that epitheliomata may originate under the periosteum, or in the spongy portion of the maxillary bone, or they may originate in the antrum—starting in the epithelial layer covering the mucosa, or in that lining the glands. He cites no cases. Reclus reports two cases operated upon by M. Verneuil, English reports one of epithelial carcinoma in the antrum. Verneuil and De Gaetano each report one case, as well as Reinhard.

The case reported by Dr. Phillips, is as follows:

J. G., German, 58 years of age, came under treatment

[NOTE.—Through an oversight in the proof reading, the fact that the report was prepared by Dr. Myles, and furnished to the *Annals* by him was not recorded in our last number. For this omission apology is hereby made.]

March 7th, 1897; is of heavy build and ruddy complexion, weighing 215 pounds. Has always drank beer and light wines, and used tobacco. Six years ago remembers having had pain in the region of the right antrum; several teeth in the right upper jaw, which were in a state of decay, three years previously had been extracted. The pain had continued, and one and one-half years later, an opening had been made into the antrum through the alveolar process, through which opening there had never been much discharge of pus or blood. This opening had never closed. Four months ago, he noticed a growth around the opening which had rapidly increased in size. There was found to be a large cauliflower-like excrescence projecting from the alveolar opening. It was about two inches long from before backward, and three-quarters of an inch broad. It appeared to be a large mass of granulation tissue. Careful examination revealed a pedicle, which extended into the antrum, and which bled when touched with a probe. There was a sensation of fulness, with some pressure in the region of the antrum, but no external swelling or bulging, and no severe pain. Transillumination revealed a dark area over the entire region of the antrum. There was no glandular enlargement. The nasal cavity upon that side was quite normal—no polypi, no excessive secretion. The eye did not protrude, and was normal in every way. Believing the growth to be made up of polypoid or granulation tissue, he was informed that an operation would be necessary for its removal. The operation was performed at the Post-Graduate Hospital, March 15th, 1897, under ether. The large protruding mass was removed by a cold wire snare, after which a probe was passed into the antrum, which was found to be completely filled with the same kind of tissue. The opening was enlarged by means of curettes and gouges, until large enough to admit the finger, and the entire mass was removed. Hemorrhage was excessive.

Special pains were taken to curette every portion of the antrum; and the large opening made it quite possible for this to be accomplished. There was no indication of extension of the disease into adjacent tissues or sinuses. The cavity was thoroughly cleansed with bichloride solution, and carefully packed with iodoform gauze. The

patient made an uneventful recovery, and after about six weeks the packing was discontinued, and the wound allowed to close up. From this time, to March 14th, one year after the operation, he has been examined once a month. There are now no visible signs of recurrence, no pain or tenderness, nor glandular enlargement, and no loss of appetite or flesh. His weight is now 218 pounds. The opening into the antrum is still entirely closed; the eyesight is good, and there is no fetid or purulent secretion.

Microscopical examination of the growth was made by Dr. Wright, and it was found to be an epithelioma. That the growth was primarily from the antrum, there could be no doubt. Its gross appearance was certainly unlike epithelioma which, together with the fact that primary epithelioma of the antrum is almost unknown, had led to the diagnosis of a benign growth. Dr. T. M. Prudden also examined the slides, and entirely coincides with the views of Dr. Wright.

Two camera lucida drawings were exhibited, the first showing the region where the epithelial joins the edematous portion of the growth; the second, being a high-power drawing, showing the infiltration at one point of the epithelial cells into the edematous tissue. That there has been no recurrence, is probably due to the apparent incipiency of the growth, enabling its thorough removal. The polypoid degeneration of the mucous lining of the antrum, had no doubt, existed for a long time. Had there been extension into the adjacent sinuses, especially the ethmoidal and sphenoidal regions, or had the bony walls of the antrum become infiltrated or destroyed, or had there been extensive glandular enlargement, with a cachectic diathesis, the results would, no doubt, have been very different. By thorough removal of the entire mass, however, it is to be hoped that all traces of the epithelioma have been obliterated. And the absence of recurrence after one year and two months have elapsed, would seem to bear out this conclusion. The large opening, allowing such thorough curettment, is also believed to have contributed to the successful termination.

Dr. Wendell C. Phillips, New York:—Mr. President and fellows: I have only a word to add, and that is to emphasize one point, that the growth, which I removed seemed to be made up of epithelial cells ingrafted upon the surface of a mucus polypus in the antrum of Highmore. The literature on this subject is very meagre. It is impossible to gain very much information from books or published cases. It is a matter of speculation as to how and where these growths originate. If this was a true primary epithelium, ingrafted upon the surface of a mucous polypi, it goes far to prove that benign growths may and often do become malignant.

Chronic Inflammation of the Pharyngeal Tonsil, with Little Hypertrophy, by Chas. N. Cox, Brooklyn, N. Y. (Abstract.)

Universally conceded that lymphoid hypertrophy at vault of pharynx of sufficient degree to interfere with respiration is productive of harm.

In the typical case, where obstruction is a marked feature, no question as to the advisability of complete removal of growth.

Purpose of this paper is to call attention to those cases in which there is chronic inflammation of pharyngeal tonsil with little or no hypertrophy. The condition is analogous to that often found in the faucial tonsils.

It is one of the most frequent causes of nasopharyngeal catarrh in children. Patients subject to frequent attacks of "cold in the head," which is, in many instances, not a coryza, but an acute inflammation of the nasopharyngeal tonsil. Increased liability of such subjects to infection. That condition known as a "cold" is more often the result of entrance into the system of pathogenic organisms carried into the air-tract by dust, than that of exposure to cold or damp air.

Frequency of so-called "bilious attacks" in children suffering from this disease, even where there is little hypertrophy. Believed by the author to be a septic process due to infection. Disease attended with more or less general debility and lack of tone, most cases anemic. Eustachian tube and middle ear frequently involved. Sometimes a very small collection of hypertrophied lym-

phoid tissue will impair the resonating power of naso-pharynx to such a degree as to prevent the production of the finest quality of tone. Removal of this little hypertrophy is sometimes followed by most gratifying results in patients who are professional singers. Many cases get well with simple local and general treatment.

Author is not an advocate of indiscriminate and reckless scraping out of every naso-pharynx that presents itself, but maintains that in certain cases of chronic inflammation of the pharyngeal tonsil, even where there is little hypertrophy, removal of that little is the quickest and most efficacious method of treatment, and the one attended with the most lasting results.

Discussion—Dr. Lewis C. Cline, Indianapolis, Ind.:—I wish to congratulate Dr. Cox on his very interesting paper. I would like to ask him to explain a little further as to his method of operating. I think in all cases we should satisfy ourselves that we are going to do our patient good by operating before we decide to do so. The time for indiscriminate operating in every case is past. We all know some who operate on every patient whether or not there is anything to operate upon. Of course, if we have something which is obstructing the nasal passage, we should generally remove it. I frequently remove adenoid growths by degrees, not using anesthesia but a little cocaine, and then use the forceps and remove a small portion of the growth. I think I get as good results as those who use anesthesia and remove the entire growth at once; although, of course, I know there are cases where it is necessary to use anesthesia and remove the growth at one sitting; but the gradual method in private practice will produce just as satisfactory results. In curetting we should be very careful about scraping in too deep.

Dr. F. J. Quinlan, New York City:—I thoroughly disagree with the last speaker in making sectional operations. I think that if we have a growth which interferes with respiration, the voice or with the hearing, it should be removed at one operation in its entirety. I do not approve of the galvano-cautery in these cases. I was not here when Dr. Cox read his paper, so I do not know what stand he took on this question; but it seems to me that the use

of the galvano-cautery is a dangerous measure, further, that it seems to me as non-surgical. I do not think there is anything more surgical than the knife, even if you do get a little bleeding occasionally. The worst case of hemorrhage I ever saw resulted from the use of the galvanic snare. It kept me busy all night and the following day. One other objection to sectional operations done without ether in children is that they terrify the child causing it often to interfere with the movements of the operator.

Dr. Price Brown, Toronto:—I agree with the last speaker. I think if possible the whole operation should be done at one sitting. I think this is particularly so in the case of children. In these cases, I often do the digital operation using the finger only. It can be done very well in this manner. You can get a much better idea of the condition existing within the naso-pharynx from the touch of the finger than when the impression has to pass through the curette. In older persons I have used the forceps, but have never found it a satisfactory instrument. I very much prefer the different modifications of Gottstein's curette. Still, even with this instrument, you can rarely complete an operation at a single sitting—a second being required several days later to render the removal thorough. I might mention one case I had in connection with this discussion. I removed almost the whole mass at one sitting. The patient was a prominent singer, and would not permit me to remove any more at that time. The result of the operation was some improvement, but she did not have a perfect voice. Finally three years later she came to me again and I removed the rest. Her voice soon recovered, and it is now practically normal.

Dr. Jas. E. Logan, Kansas City:—It has not been my privilege to see many cases of chronic hypertrophy in children. I thought the paper referred more especially to those cases found in adult life.

So far as the operation is concerned, I do not approve of the galvano-cautery. The curette is much better, and better still is the ring knife of Schulz.

I think chronic hypertrophy in the adult is due largely, if not altogether to diseased pharyngeal tonsil in the child.

Dr. Lewis C. Cline, Indianapolis, Ind.:—Of course I use anesthesia in some of my cases for the removal of adenoids. I use it whenever it is necessary. In the majority of cases I do not use it. I do not see where the objection lies to taking off a part of the growth at one operation, and the balance at subsequent operations. I believe with a little bit of training and the right kind of forceps that better results can be produced in this manner without danger of complications. It is my experience that parents submit more readily to the gradual operation. I have had very little trouble with children. Cocain, in my experience, is all that is necessary. I have been criticised three or four times for doing the gradual operation, but I believe the doctors who criticise me most have never tried my method. I must insist that in many cases removal by the gradual method is preferable.

Dr. Robert C. Myles:—I heartily endorse this prolonged discussion of a subject of so much importance. There have been two very radical views expressed this afternoon, and we have listened to some diversified ideas as to the proper method of procedure. I think that both methods should be employed. I have had cases in which, for many reasons, Dr. Cline's method was pursued, and in others in which a more radical procedure was followed. If one will take the specimen shown by many operators as having been removed from the rhino-pharynx, and place it under a microscope, very frequently it will be found to consist of muscular tissue, fibrous tissue and sometimes even periosteum. The tissue is not adenoid tissue. As a matter of fact, every case should be studied in itself. Certain cases will require one operation, and some another. What is required is a scientific comprehension of the necessities of each case. There is no doubt in my mind that for the more extensive operations, the use of the anesthetic is advisable. One important factor in these operations, is the use of a proper sized curette, and a sharp one. Passing it well up until it strikes the septum, and then carrying it backward while the attendant holds the head of the patient in a straight position, one can often remove a very large amount of growth with one sweep of the curette. So far as ether is concerned in the operation upon children, it

has been my experience that the child dreads the ether more than the operation. Chloroform is preferable, but dangerous.

Dr, Cline:—Do you use chloroform?

Dr. Myles:—There is a strong objection to the use of chloroform in New York City and I use it only on rare occasions.

Dr. Cline:—Do you operate without anything?

Dr. Myles:—Usually with crystals of cocain or a strong solution of ether gas or chloroform.

Dr. Lewis C. Cline:—I do not wish to take up much more time in the discussion of this question, but this discussion recalls one in which I took part. At the last meeting of the Mississippi Valley Medical Association, I read a paper upon this subject and upon its conclusion several gentlemen proceeded to criticise the gradual method. After a heated discussion the participants were about equally divided in opinions. After the discussion, one of the gentlemen said to me that if the operation was on his own child he would not permit the radical operation, but in the hospital work, where you wanted to get rid of your cases rapidly, that he would always remove the growth at one sitting. I think either in hospital practice or private practice we can get results by my method if we have the right kind of an instrument and go at it right. As Dr. Myles says many children will submit to an operation, either with curette or forceps, rather than to submit to anesthesia. That has been my experience.

Dr. Chas. N. Cox, Brooklyn, N. Y.:—Mr. President, I have been very much interested in the discussion although it got pretty far away from the subject of my paper, and for the benefit of some gentlemen who did not seem to understand just what my subject was, I will say that I took the liberty of changing the title to "Chronic Inflammation with Little Hypertrophy." I am not prepared to dispute the statement of Dr. Logan that all of these cases must be the result of original diseases in childhood. As to my methods of operating, I think perhaps the personal equation enters very largely into all operations. Some surgeons may be so skilful as to remove these slight hyper-

trophies with the forceps without anesthesia without causing a great deal of pain to the patient. I have sometimes in adults, without anesthesia, removed the growth during several sittings. In children I never do. I always operate with anesthesia, usually chloroform, patient in horizontal position, using a Gottstein curette, or some modification thereof. In addition to that, I always pass my finger well in to see that I have completed the operation and not left any fragments or small portions.

Dr. Howard Straight, Cleveland, Ohio: It is easy enough to decide as to the necessity for removal in the marked cases, and the authorities all agree that adenoids should be removed when they obstruct; but I have been treating many cases in which the hypertrophy was slight for a number of years by radical operation, and in the majority of cases I have secured good results. I do not want to go on record as favoring the indiscriminate scraping of the naso-pharnyx of every patient who comes under my charge. I know, of course, there are cases in which no operation is necessary; but I believe they are not nearly so common as many suppose. Curetting the cavity of the naso-pharynx, like curetting the cavity of the uterus is sometimes difficult to determine whether it is necessary to curette, and I have often been compelled to make a post-nasal digital examination. If I find a much thickened membrane I curette lightly. I never found very much in the literature of the subject to bolster me up in my plan except a slight reference in McBride, but the paper of Dr. Cox altogether justifies me in what I have been doing for a number of years.

Dr. Max Thorner, Cincinnati:—I wish to say that I entirely agree with Dr. Cox and Dr. Straight. It seems to me that this question ought to be settled once for all. It is not many years ago that some of our text-books and monographs on the subject said that if there was a small amount of adenoid tissue, which does not cause obstruction, you need not remove it; and many operators were of the opinion that it is not absolutely necessary to remove at an operation, every trace of adenoid tissue. The point which I wish to emphasize is this: It is not the amount of adenoid tissue which should be the guide as to whether or

not an operation is necessary, but it is the disturbance which that adenoid growth may cause. This is particularly the case in people who must make professional use of their voices, as speakers and singers, and often in children where the reflex disturbance may be great, though the amount of lymphoid growth may be entirely out of proportion to the trouble caused by it.

Acute Suppuration of the Middle Ear. Jas. E. Logan, M. D., Kansas City, Mo.

On motion, discussion on this paper was postponed until Thursday morning.

End of afternoon session.

Adeno-carcinoma of the Nose, by Max Thorner, M. D., Cincinnati, Ohio. Abstract.

The author refers to the confusion regarding the nomenclature of nasal tumors. In his paper he wishes to speak about such neoplasms only as are histologically to be classed as adenomata and adeno-carcinomata. The case under consideration is one in which a typical adenoma of the nose developed into an adenocarcinoma.

The case reported is that of a farmer aged 47, white, who was referred to the author by Dr. V. T. Churchman, of Charleston, W. Va., Sept. 16th, 1898.

About one year ago he noticed some obstruction in the nasal cavity which gradually increased until breathing through that side was absolutely impossible. Four months after he noticed the trouble, the doctor removed a large growth from the nose with a snare, after which breathing was again free for about one month. Then the same trouble reappeared.

Another large portion of the growth was again removed. He was free for about two weeks, when breathing was impeded again, and two weeks later the left nasal cavity was entirely closed. Operations were repeated at intervals of about one month with moderate hemorrhage, and for most of the time were not very painful. His only complaint is obstruction to breathing. Has not lost weight. Appetite good.

The following is the condition upon entrance into the hospital: Man of medium size, fairly well nourished, noth-

ing abnormal to be seen about his face. Hearing in left ear diminished; the left side of nose entirely obstructed by a growth which extends from the vestibule backward, and fills completely the space between the choana and the eustachian tube; color greyish-red, surface uneven and resembling somewhat a mass of cauliflower, is soft and bleeds upon touch; origin can not be ascertained, but it seems to come from the middle meatus, which is completely obliterated. Septum free from growth; no glands enlarged. A large portion was removed with a snare. Microscopic examination proved it to be typical adenoma. Two and a half weeks later, nose was again obstructed, and much was again removed. Microscopic examination confirmed the first diagnosis. On October 22d under chloroform anesthesia an enormous amount of masses were removed from the nose and post-nasal space with snare and curette. Pieces from the size of a filbert to that of a small walnut were removed, all being very friable. Microscopic examination of these portions was made by the pathologist of the hospital, Dr. Freiberg. He reported as follows: "The surface of the growth is not papillary but smooth. Lying in a well developed stroma of young connective tissue, abounding in easily-stained nuclei, is seen an enormous aggregation of tubuli of various conformation. Some of these are fairly straight with lumina of small calibre, others convoluted in their course and others still short with large dilated lumina, reminding one of cystic formation. Here and there is to be seen a typical collection of epithelial cells without evident lumen. The tubuli are lined with a tall cylindrical epithelium whose nucleus is large and very easily stained. I have been unable to detect anything like cilia of these epithelia. Taken altogether the picture reminds one forcibly of the malignant adenoma of the uterus—I should call it malignant adenoma. On October 29th, one week after the operation, the growth returned, and a more radical operation by temporary resection of the upper jaw was suggested to the patient. The patient refused operation and left the hospital.

A few months after the patient returned home he began to decline. The growth had to be removed every few weeks. On April 25th Dr. C. wrote that he had operated upon the patient eight or ten times since his return, and

that the operations had grown to be very painful. General health very bad, sallow complexion. The septum and right side of the nose involved; eyelids edematous. On April 25th some more masses were removed and sent to the Johns Hopkins Pathological laboratory. It was reported to be a typical case of adenoma changing into an epithelioma. The patient was not seen for one week, and then his nose was double its size and purple; eyes swollen, protruding and bloodshot, was only able to swallow soft and liquid food. Patient died on June 12th. The following is the history of the family physician who attended patient during his last few weeks: The growth broke through the wall of the nose at its bridge, from where hemorrhage took place; the left eye was finally destroyed, and the growth in left orbit measured two and a half inches at the time of death, bleeding at all times. No hearing for ten days preceding death, mind entirely destroyed the last five or six days.

This is a case of malignant disease of the nose, the duration of which is about two years. The question arises whether this was an adenoma that underwent carcinomatous changes, or whether it was not a case of benign tumor in addition to which there developed later a carcinoma. Adenoma of the nose is looked upon by many as a benign tumor; however, all authors agree upon the possibility and even on the probability of an adenoma becoming malignant. Pathologists and clinicians mention the manifest malignant tendencies of adenoma of the mucous membranes, and speak of a form of adenoma of the uterus as adenoma malignum. In a still further advanced stage, when the epithelial elements assume the shape of a dense cell conglomeration, we are in the habit, according to Ziegler, to call such a growth an adeno-carcinoma. And with such an occurrence, no doubt, we had to deal in this case.

Dr. E. W. Day, Pittsburg, Pa.:—I would like to report a case of naso-pharyngeal sarcoma, in which the results were not good. The patient died from the effects of the operation. The patient was a boy, H. L., aged 14 years. When he first came to my office there was marked protrusion of the right eyeball and cheek. A mass was protruding from the right nostril. The history given by the

patient was as follows: Two years previous there had been some trouble in the right antrum which had been treated by a dentist, with all appearance of cure. The following year a growth was observed to block the right nostril, and an attempt at removal was made by a physician which resulted in a very copious hemorrhage that was with great difficulty controlled. A small section of the growth protruding through the nostril was removed for microscopic examination and a diagnosis of round-cell sarcoma was made. As death was inevitable in any case, the father gave permission for an operation, and the tumor was removed by excision of the superior maxillary. The growth had two attachments, one broad and firm attached to the basilar process of the body of the sphenoid, the other thin and ribbon-like coming from the antrum. When the growth was torn loose from these attachments a very copious hemorrhage of venous blood resulted. The hemorrhage was controlled very quickly by packing the cavity with pledgets of gauze: but in this short space of time an immense amount of blood had been lost, and the shock to the patient was very great. Free stimulation and intravenous injections of a large quantity of the normal salt solution was used without effect, and the patient survived but a few hours after the operation. The growth was quite large, some eight inches in circumference, and heart shaped with the apex at the nose. In the right nasal fossa, the turbinates disappeared from pressure, and the antrum was almost obliterated from pressage on the inner wall. In this growth, extending through the center, was a very large venous cavity which would admit the small finger, which led direct to its attachment at the sphenoid and had almost direct connection with the cavernous sinus at the base of the brain. The excessive hemorrhage had come from this large cavity.

Dr. Robert C. Myles:—These cases do not often occur, but when presented afford a series of interesting consequences. A few years ago a lawyer was sent to me by a general surgeon for diagnosis of antrum disease. He had been operated upon by a general surgeon and by a dentist. A clinical diagnosis of a malignant growth was made. I removed a section and Dr. Prudden pronounced the speci-

men a sarcoma. In the operation by Dr. Wyeth a portion of the superior maxillary and pterygoid bones were removed, and an artificial jaw was inserted. With the exception of a rather disagreeable taste in his mouth, the patient is doing very well. Last year I operated on a woman 50 years of age for a growth in the faucial tonsilar region, which three pathologists stated was sarcoma, the fourth was not certain. It extended into the muscular tissue, a very unfavorable symptom. The tumor was removed by deep dissections, exposing the constrictor muscles; this was over a year ago, and the woman at the present time is entirely well. I think if the case had progressed a short time longer, perhaps for a month or more, it would have been beyond recovery. Some pathologists claim that these cases of recovery could not have been sarcoma.

Dr. Price Brown, Toronto:—I had a case of this kind to report at Baltimore three years ago, and I speak of it again to-day because the man is still alive without any return of the disease. This was the case of a young man, 19 years of age, who had had what was supposed to be sarcoma and had been operated upon several times with excessive bleeding, but there was a rapid recurrence after each operation. Pathological examinations were made and the disease was pronounced round cell sarcoma. He was advised to go to Baltimore, which he did, and the final operation was performed in one of the hospitals there. He recovered, and came back to Toronto. About a year afterward he came to me, and, upon examination, I found a large, solid, hard, growth in the right nasal passage. It was about half way back and sessile, and seemed to be growing from the septum vault and the external side. He was bleeding considerably at the time, and I saw an operation must be done soon, and that it could not be operated upon with a snare. I used the cautery. The first time it caused considerable bleeding and I plugged the nostril. At the second operation, two days later, the hemorrhage was immense. I had to get professional assistance to help stop it. I then used electrolysis, passing one needle through in front and the other behind the soft palate, both of them penetrating the tumor. The seances were continued as long as the patient

could bear the pain, and were repeated several times at intervals of one to two days. This had the effect of removing or lessening the amount of the mass, but it became less red in appearance. It practically limited the blood supply. I then again used the galvano-cautery as before. There were a number of operations, perhaps twelve or fifteen sittings in all. Finally, the whole of the growth was removed. All the operations were done under the influence of cocain. Twice over I had microscopic examinations made of sections, These pronounced it to be fibroma.

Dr. Thomas H. Halsted, Syracuse, N. Y.—About three years ago, a man fifty-five years of age, consulted me because of an exophthalmos of the right side. The eye was pushed upward and outward. There was some pain over the antrum and some swelling. On examining the nose, clear yellow pus was seen coming from under the middle turbinated body, and quite a large mucous polypus, originating apparently from the region of the hiatus semilunaris. Trans-illumination showed the right antrum and pupil perfectly dark, the left translucent. He gave a history of an ulcerated tooth with antral suppuration following, dating back eight years. I diagnosed empyema of the antrum, and opened through the alveolus, finding comparatively little pus, but the antrum filled with a red, friable mass, which under the microscope was shown to be carcinomatous. The microscopical examination of the polypus showed it to be a simple mucous polypus, non-malignant. The point I desire to make is this. Had this polypus been removed say before the exophthalmos appeared and before the malignant disease of the antrum was discovered, the case might have been looked upon as a benign growth undergoing, after operation, malignant change.

At the last meeting of the Society, I reported a case of naso-pharyngeal sarcoma in a child fourteen months of age.

Sarcoma of the Naso-Pharynx, with Report of a Case. By D. D. Hengst, M. D., Pittsburg, Pa. (Abstract.)

Sarcoma is met with more frequently in the naso-pharynx than carcinoma. Up to 1889, Bosworth has collected nineteen cases of sarcoma, which appeared in the naso-

pharynx. The disease appears earlier than carcinoma. Ten of the above cases occurred between the ages of one and thirty years, and of the ten, five were between ten and twenty years. The male gender was more frequently attacked in the proportion of one to three.

The character of the secretion is somewhat diagnostic. It is of a sero-mucous character and quite ichorous and offensive. Epistaxis is often present. The general health is naturally much impaired, though no special cachexia is seen.

Difficult deglutition and dyspnœa, with impaired healing all depends on the size of the growth. The origin of the tumor is usually from the basilar process of the occipital bone, beginning in the deeper layer of the mucous membrane lining the pharynx, and growing in the form of lobulated rounded growth. Infiltration extends in all directions. The color of the growth depends upon its vascularity and composition. The only positive way we can reach a diagnosis is by microscopical examination of a section.

Carcinoma is usually more firm to the touch. Enlargement of the cervical glands generally occurs early in pharyngeal malignant disease, and is observed in about one-third of the cases.

Prognosis—The earlier in life the more rapid the course of a sarcoma. A small rounded celled tumor runs a much more rapid course, than a spindle celled variety. A mixed growth grows less rapidly. Generally the prognosis is exceedingly unfavorable.

The author prefers the cold snare in removing the tumor, and slits the palate if necessary, to get at the growth. In using the cautery snare there is danger of exciting inflammatory reaction of a severe character in the surrounding healthy structures.

The external operation should only be performed when all other means are out of the question, and it gives promise of prolonging the life of the patient, if the patient's condition is fair at the time of operation.

The case reported by the author was a young man 14 years old. Difficulty in breathing, dysphagia, headache, dullness of hearing, epistaxis with an icherous irritating

discharge from the nostrils were prominent symptoms. The enlargement of the cervical glands could be detected.

There was bulging forward of the right side of soft-palate, presenting almost the appearance of an acute phlegmonous tonsillitis. A semi-solid mass could be felt almost completely filling the post-nasal space, and was attached to the walls of the pharynx and soft palate.

It was decided that an external operation was the only method advisable. Dr. Buchanan performed the operation by making an incision transversely from the zygomatic process of the malar bone, skirting the lower border of the orbit to its inner and lower angle. This incision was continued downward between the nose and cheek and along the upper lip to the median line, dividing the lip. After the soft parts were separated a wire saw was drawn beneath both bones, by means of a blunt hook. Another saw was passed under the nasal process of the superior maxilla.

The soft palate and uvula were split in the median line, and a drill hole was made well back in the middle line of the hard palate, through which another wire saw was drawn into the nostril. The bones were sawn through in a few seconds, and the superior maxilla lifted from its bed. The growth was cut away with scissors after extensive dissection, though it was impossible to remove it entirely. After the parts were brought together few signs of the operation remained.

Shortly after the operation, however, the naso-pharnyx again filled with the mass, and the patient succumbed, twenty-five days after the surgical treatment. The microscope showed the growth to be a small round-celled sarcoma.

AMERICAN LARYNGOLOGICAL, RHINOLOGICAL AND OTOLOGICAL SOCIETY— EASTERN SECTION.

WASHINGTON, JANUARY 28TH, 1899.

ABSTRACT REPORT.

The meeting was called to order by the President, Dr. Charles W. Richardson, who delivered a brief address of welcome.

The following papers were then read and discussed:

Reflex Cough.—Dr. Geo. L. Richards, Fall River, Mass.: —The author defined reflex coughs as those in which no demonstrable lesion is found in the air tract, from nose to terminal air vessicles. The term includes all those coughs, extra respiratory in origin, which are due directly or indirectly to irritation of the fibers of the pneumogastric nerve, whether peripheral or central. The cough of pressure origin, as from aneurism and large thyroid and new growths outside of the larynx and trachea, and included in the term "reflex." A cough of nasal origin is in a sense not reflex since the nose is a part of the respiratory tract, yet as it is not supplied by the pneumogastric but communicates with it through the vaso-dilator nerves from the superior cervical ganglion of the sympathetic, it seemed to him proper to call nasal coughs reflex within the meaning of the above definition.

He believed that reflex cough is produced by an irritation passing along sensory fibers to the point of explosion in regions supplied by some other nerve, and where there is no direct communication travels by way of sympathetic or some other ganglia and in this way also accounted for the distant nature of some of the reflexes producing cough.

He stated that reflex and nervous cough is characterized by some or all of the following: Sudden appearance, rythmical in character, free intervals when no signs of cough, expectoration absent or slight in amount, no fever or marked constitutional disturbance, may come at regular intervals, may continue for years or stop at any time, or

eventuate in other symptoms, stops when person's attention is fully occupied, most marked when under observation, usually absent at night (always if purely nervous), absence of physical signs in the respiratory tract and its tone is various—sometimes hacking, bellowing, shrill, croupy or metalic. He then considered in detail various reflex coughs having their origin centrally, or in the ear, nose, or more distant organs of the body.

Further Experiences in Operative Procedure in Staphylorraphy.—Dr. Jno. C. Lester, Brooklyn:—The author referred to his former paper on this subject, read at the Pittsburg meeting, May 11th, 1898, in which he endeavored to show that it is entirely possible to operate in extensive defects of the soft palate after the age of puberty, not only with the hope of complete closure of the cleft, but also with restoration of function. He stated that recent experiences had confirmed him in the opinions then stated, that so much could be accomplished in selected cases, and, reported a case recently operated upon with success. The patient was a female aged 29 years with an extensive fissure in the soft palate which extended to and included a small portion of the hard palate and, the neighboring parts of the pharynx and nose were considerably diseased.

The essential features of the operation were: The introduction of sutures as the first step in the procedure; the employment of scissors curved on the flat for denuding the edges; the use of large sized silver wire (No. 24), for sutures, and the employment of a Miles' tonsil punch for denuding the angle and that portion of the cleft included in the hard palate; and, the use of the writer's serrated tonsil curette for further preparation of the tissues.

The advantages claimed for this modification were the possibility of controling hemorrhage by the introduction of the sutures as the first step in the operation; the case and acuraccy with which silver wire can be introduced and the length of time such sutures can be allowed to remain in the tissues.

Discussion.—Dr. Richards asked at what age Dr. Lester would prefer to operate and whether in dealing with a child of five or six he would operate or postpone procedure for several years.

Dr. Lester replied that he would prefer to operate after puberty and that if he had a hard subject to deal with he should do a tracheotomy first.

Sarcoma of the Tonsil.—Dr. Root, New York:—Dr. Root reported a case of sarcoma of the tonsil occurring in a young man only 23 years old. Family history was negative. Patient's illness began one year ago with an ordinary cold. Deglutition was painful and left tonsil became enlarged and developed into an abscess which was several times lanced, but it remained permanently enlarged and there was some swelling and tenderness externally. Examination showed a large mass involving the whole of the left tonsil, presenting a hard and somewhat irregular surface, slightly injected but not ulcerated. Externally the chain of lymphatics were to some extent involved. Microscopical examination of small portion of the growth enabled the author to diagnose small spindle called sarcoma. Two rather extensive operations were performed during which the tonsil, the enlarged glands and a portion of the inferior maxilla were removed. The patient is convalescent.

Discussion.—Dr. Johnson advocated the operation described and suggested the use of the toxines for those patients who would not submit to operation and referred to a case reported several years ago which he cured by this means.

An Unusual Case of Sinus Thrombosis and Epidural Abccess Complicated by Malaria—Operation—Recovery.—Dr. M. D. Lederman, New York.

The patient was seen on April 2nd with a severe ear ache of the right side. Two weeks before he had had a similar attack which was followed by a thin watery discharge from the external auditory canal. A few days before entering the hospital the second attack came on and his attending physician had incised the drum because of its bulging and of a painful tender mastoid. The patient's condition became worse, however, and he was admitted to the hospital where he was treated with warm douches and the Leiter's coil. On the day of admission temperature was 104 and between that

time and April 18th it varied from normal to 105.2. Phenacetin was used in the first few days and when on April 9th the plasmodium of malaria was found in the blood, injections of quinine were used. On the 17th ophthalmoscopic examination showed optic neuritis on the right side and when on the 18th a mastoid operation was performed the antrum and mastoid cells contained pus and granulation tissue and the lateral sinus was thrombosed for at least an inch and a half and pus flowed freely when it was opened. The patint made a good recovery.

Two Operations for Mastoiditis with Unusual Features.—Dr. Thomas R. Pooley, New York.

The first case was one of acute mastoiditis which was operated upon and the operation was followed by persistent vomiting lasting for 48 hours and becoming at one time quite serious.

The second case was a mastoid operation performed in an acute case and followed by inflammation of the frontal sinus with escape of pus through the nose.

Discussion on the Operative Treatment of Chronic Purulent Otitis.—Dr. S. Macuen Smith, Philadelphia.

Dr. Smith stated that in acute middle ear disease and especially that following or occurring during epidemic influenza he thought it best to open the drum head early and that a free incision should be done instead of a simple paracentesis. When mastoid symptoms are evident, he operates early and thinks that trouble is apt to occur as a result of that conservatism which allows complications to arise before operating. He thought that no harm could be done by at least performing the Wilde's incision and that that could be done as a preliminary step to further operation if necessary. He remarked upon the rapidity with which granulation tissue presents itself in even acute cases.

Dr. Edward B. Dench, New York.—Dr. Dench began with the discussion of the two papers just read and took exception to Dr. Lederman's administration of an antipyretic in a case of suspected mastoid disease. He thought that in such a case it was essential to study the course of the temperature and that we should not administer any-

thing which might mask it. He thought that the case should not have been left until optic nuritis developed, but should have been operated upon much earlier, for he believed that no damage results from a perfect aseptic operation.

Referring to the use of the ophthalmoscope to assist in a diagnosis in cases where cranial complications are suspected, he stated that his own experience had been that in very many cases it was of no use as there had been severe complications without evidence of optic neuritis or cloudiness of the disc.

He objected to the use of the Wilde's incision without further operation upon the bone.

Dr. Dench then described the development of the Schwartze-Stacke operation and its value in the treatment of chronic as well as acute middle ear suppurations. He stated that he had always been an advocate of the operation for the removal of the ossicles in chronic otitis media suppurative in preference to the radical Schwartze-Stacke operation, but a recent review of his records had shown him that by the simple method he had had but 58 per cent. of cures, whereas by the radical method the percentage had reached 64.

Dr. J. F. McKernon, New York.—Dr. McKernon emphasized what Dr. Dench had said regarding the use of antipyretics and also cencerning the Wilde's incision. In reference to the acute cases of otitis media he advocated an early and very free incision of the drum head.

In the treatment of chronic purulent otitis where there has been no previous mastoid involvement and where we can examine the middle ear he believed in the removal of the ossicles through the canal.

Dr. J. A. White, Richmond: Dr. White said in regard to optic neuritis as being a certain means of diagnosis of cerebral complications, or of a thrombus complicating chronic otorrhea, he doubted if it was at all reliable. He stated that he had seen these troubles without neuritis, and had seen a neuritis that led him to perform a mastoid operation without finding any complications.

He referred to the difficulty frequently encountered of getting patients to submit to an operation for chronic otorrhea. He thought it made little difference whether you

performed an ossiculectomy or a radical mastoid operation, so that the result secured was perfect drainage, but he believed that this was more perfectly attained by the radical operation.

Dr. Pooley:—Dr. Pooley differed with Dr. White as to the value of ophthalmoscopic examinations in these cases, and stated that it was almost a postulate that where you have optic neuritis, and can exclude certain intraocular diseases, that you must have a cerebral disease to produce that form of inflammation of the optic nerve generally known as choked disc. He believed that whenever you find a purulent inflammation of the middle ear associated with optic neuritis, there is pretty sure to exist an inflammation of the brain.

Dr. Lester:—How do you distinguish between optic neuritis, due to a constitutional disease, and one due to otitis?

Dr. Pooley:—Optic neuritis, when due to a lesion in the brain, is of that character known as choked disc; that is, there is intense swelling of the optic nerve head, and if that be associated with disease of the middle ear we naturally associate the two as cause and effect. Of course, if we accept this as proving that there is cerebral disease, we have not absolutely determined its nature or location. It may be due to sinus thrombosis, disease of the meninges, or to any other of the conditions that arise from purulent inflammation of the middle ear. It may also occur with cerebral tumor, but since that so rarely occurs with the other symptoms that lead one to suspect brain trouble from otitis it need scarely be considered.

The Rebuilding of a Nose Without the Insertion of an Artificial Bridge.—Dr. T. P. Berens.

The author reported a case of long-standing deformity resulting from a severe injury to the nose in early childhood. The nasal bones were pushed apart, turned outward and flattened so that the bridge of the nose was very broad and flat. The nasal speculum revealed the columnæ well over to the right side, largely occluding the right nares, while the body of the septum was deflected to the left, and its upper half was adherent to the walls of the vestibule.

Under anesthesia the soft parts were divided from the septum and the cartilaginous septum as well as the "bony nasal spine" of the superior maxilla were broken so that the nose was made quite pliable and was easily molded. A perforated cork splint was inserted in each nostril and a plaster cast of a normal nose, obtained from a friend, was bandaged firmly in place as an external splint. This splint was removed after three days and a Fox eyeglass clip substituted.

Self Inflicted Wounds in Both Eyes, Both Ears, Tongue and Larynx, Leading to Thrombosis of the Sinus Transversus.—Dr. Geo. Reuling, Baltimore:—The patient, a man 41 years of age, suffering from mental depression and religious hallucinations had sharpened the end of a medium sized painter's brush handle and repeatedly stabbed himself. Both eyes had been perforated in the ciliary region resulting in prolapse of the corpus ciliary and iris in one eye and detachment of the retina in the other; both membranes tympani had been perforated and particles of tympanical tissue were hanging from the fissures; the tongue and left tonsil were also marked by superficial abrasions. The patient died on the seventh day after the injury, and post mortem showed an infectious thrombus of the transverse sinus, which had probably resulted from infection produced by the wounds in the middle ear and labyrinth.

The Necessity for Antiseptic and Aseptic Methods in the Surgery of the Ear, Nose and Throat.—Dr. Woolsey Hopkins, New York:—Dr. Hopkins read a very excellent paper in which he urged upon all specialists the necessity for adopting more rigidly the methods in daily use by the general surgeons. He referred to the neglect of simple antiseptic methods in many special clinics and hospitals both here and abroad and referred to the case with which modern methods of cleanliness can be adopted both in office and hospital work.

BOOK NOTICES.

A TREATISE ON DISEASES OF THE EAR.

BUCK, ALBERT H. Third revised edition. New York, William Wood & Co., 1898.

This, the third revised edition, marks the transition of the work from the domain of the manual into that of the treatise. The printer and the binder have combined to make a very presentable book. The arrangement of the subject matter in the chapters, while still open to objection as in the earlier editions, is so in a much less degree.

In chapter 1, on General Diagnosis, the writer condemns the speech test as being very unsatisfactory. By attention to the sound values of spoken or whispered words and by the use of residual air (that left in the lungs after a forced inspiration followed by an ordinary expiration) the speech test can be and is made by many aurists the most reliable and accurate test for variations in hearing that we have at our command and is far and away more to be depended upon than the average patient's impression.

The reviewer cannot agree with the writer in that "It is only in exceptional cases that we derive valuable information from the tuning-fork test." The writer himself seems a little uncertain as to his convictions on this subject, for on page 1 he states, "Although in the vast majority of instances he will derive no material aid from the procedure, he should, nevertheless, apply the vibrating tuning-fork to the patient's forehead or vortex," and on page 9, "In an enormous majority of cases of impared hearing that come under our observation, these (affections of the sound-conducting apparatus) are precisely the regions which are mainly involved, and we, therefore, expect, with considerable confidence, to hear the patient say—when the tuning fork is applied to the vertex—that the sound of this fork is heard more loudly in the defective ear." The writer fails to mention certain well-known tests, systematically employed by many aurists, *e. g.*, Schwabach's.

The forehead mirror depicted on page 14 does not compare in freedom of action with Hartmann's. The writer gives the impression that he only exceptionally looks through the central aperture of the mirror; this seems to be the only correct method of use, to the reviewer.

Most aurists would object to the recommendation, "that in the majority of cases the bowl may be used both as a reservoir from which to fill the syringe and as a receptacle for catching the water that runs out from the ear," page 29.

On page 33 the writer states that there are generally good grounds

(in the exanthemata) for believing that the primary source of the disease (of the middle ear) must be placed in the pharynx. Rudolph and Bezold, as the result of post-mortem examinations on eighteen temporals of patients dead of measles, deny this and present evidence to show that the middle ear is affected primarily, in the same manner as the pharynx and the skin.

Chapter III constitutes a very valuable epitome of the more common symptoms of ear diseases, and, if the reviewer is not in error, is an addition to previous editions, as apparently also is chapter X.

The writer will hardly bring many aurists over to his preference for the removal of impacted cerumen by instruments rather than by syringing, except in certain cases, page 110.

Dr. Robert Lewis, Jr., has furnished, in very little space, a very readable, instructive and conservative account of naso-pharyngeal conditions, chapter XIII.

The reviewer has not had so fortunate an experience as the writer, who says that "the incus usually comes away as soon as its chief support—the malleus—has been removed" (p. 360), in doing an ossiculectomy for the relief of chronic suppuration of the middle ear. In fact, the removal of the incus has usually been the most difficult step of the operation.

We read, p. 369, "when the foot-plate (of the stapes) goes, the hearing also vanishes. This, at least, must be the rule." It will seem to many of those who have artificially removed the stapedial foot-plate that some other element, than the bare removal of the foot-plate, must be taken into consideration to account for the deafness in any particular case.

The writer well says, p. 427, "Acute suppurative mastoid inflammation, if left to itself or if treated in the impotent fashion which prevailed even as recently as thirty years ago, is a disease remarkably full of disagreeable and dangerous possibilities."

On page 440 occurs the statement that "In the light of this experience, therefore, I have been forced to draw the conclusion that there is only one thoroughly safe course of acute suppurative inflammation of the mastoid cells, viz.: *to expose to view a small area not only of the sigmoid sinus, but also of that part of the dura mater which lies in the vicinity of the posterior end of the antrum.*"

The chapter on Periphlebitis and Infective Thrombosis of the Sigmoid Sinus, new, is especially timely and one of the best in the book. A mistake has been made on page 463 in attributing to Whiting the discovery of the significance of puffiness of the eyelids as a sign of interference of the flow of blood through the cavernous sinus; S. Phillips and J. W. Stirling wrote of this long before.

Chapter XXIII, on the diseases of the auditory nerve, seems to the reviewer the weakest in the book and the only one that seems to have been inadequately handled from the standpoint of the results of modern research.

Taken all in all, Dr. Buck has given us a work that is pretty truly representative of American Otology as it is practiced to-day by those aurists, conversant with the publications of domestic and foreign arthorities in this field of surgery, ready to accept that which is true and to reject that which is false. He is to be congratulated on having produced a book worthy of his reputation as a teacher and practicer of aural surgery. HENRY A ALDETON.

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